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Textile World

JULY, 1939

A McGRAW-HILL PUBLICATION

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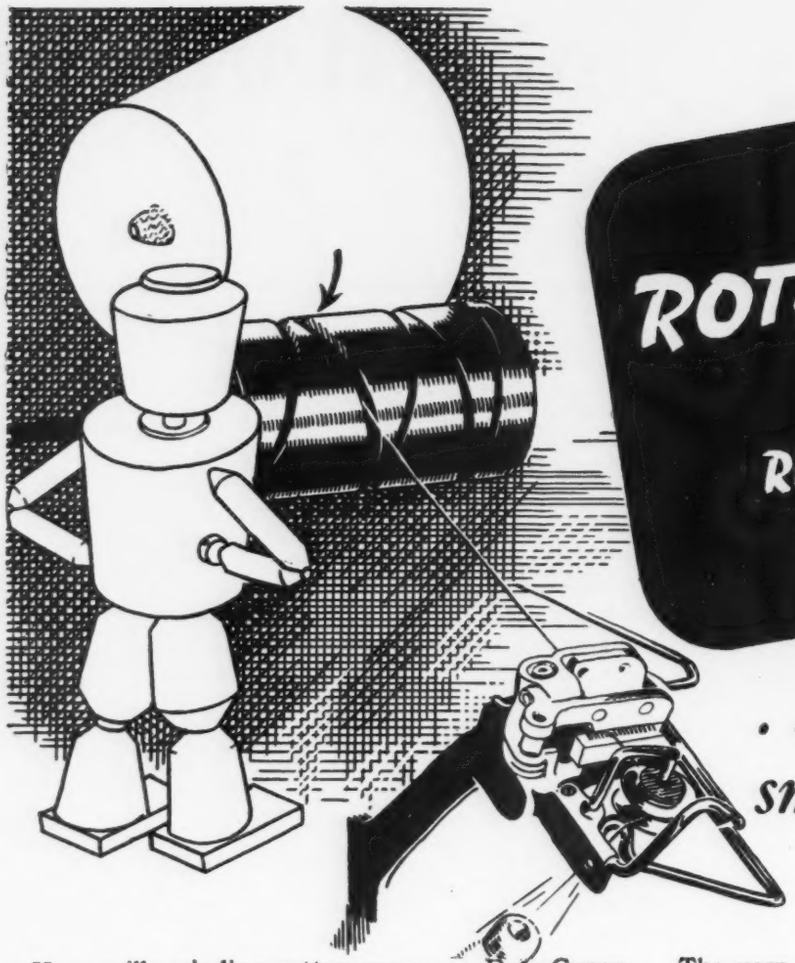

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TEXTILE WORLD

DOUGLAS G. WOOLF, Editor

Getting Rid of the IF's

LAST OCTOBER, on this page, we asked the question "Can a Textile Man Make Money?" It has been debated in these columns, in mill offices, and in convention lobbies, ever since. The general answer seems to be "Yes, IF . . ." Let's look at the record of the first half of this year and see what has been *done* to resolve these IF's. We'll examine it under the several headings of the original editorial which represented our recommendations as a possible path to profits.

1. **Guard against over-production:** Progress is being resumed in this direction. The plan adopted by the print-cloth group is setting a fine example in the cotton division. Other branches of the industry are turning attention to the problem.

2. **Improve the statistical information:** No important step has been taken toward this end thus far this year. Several groups have given a lot of thought to it, and are in a position to do something about it. It should be put on the agenda for early action.

3. **Maintenance of the price structure:** For the first part of this year, things looked pretty bad in this phase. In recent weeks, the industry's resistance has stiffened and we would say that definite progress is being made. This and No. 1 are the two key points in the industry's program. And they are related. When other better-organized industries encounter decreased demand, they adjust their producing schedules to the new volume, and instead of feeling that lessened demand necessitates give-away-your-shirt prices, they are more apt to boost their prices because of the increased costs due to the fact that the overhead is applied to a smaller volume. A big-hearted textile man however is often too apt to think that when demand shrinks, everybody ought to pile away at production and cut down prices. . . . Lately there have been signs that the stupidity of this policy is becoming apparent. Here's hoping.

4. **Maintenance of the wage structure:** Right now this is dangerous territory. The matter is in the courts, so to speak. BUT when the fight is all over, and the decision rendered, and when everybody has made every attempt to get what he believes he ought, in fairness, to have, then we hope the industry will get back to the attitude it held toward wage-hour legislation before the fight started. For years, textile manufacturers in every branch of the industry and in every section of the country have been telling this writer that they needed a law *with teeth in it* as protection against a wage-chiseling minority. They weren't kidding us; they meant it. Well, we have such a law. It can be utilized as one of the main steps to profits, if the wage-hour administration and the industry can only find a way to cooperate toward that end. Once more, we urge manufacturers to stay constructive on this point. It will be good for them eventually.

5. **Improvement of merchandising and promotion:** A record-breaking National Cotton Week and some excellent pieces of individual company promotion have given us new hope, despite the fact that the industry passed up the World's Fair opportunity.

6. **Expansion of research programs:** Fuller Callaway's thrilling suggestion at New Orleans, and the great interest it has aroused, make us believe we may eventually start on a broader phase of this line of effort.

7. **Modernization of plant:** There are indications that most manufacturers now realize this is essential as a way to profits. We shall devote our November issue to a demonstration of this fact.

WE CONCLUDED our original editorial with the plea that, as an over-all aid toward the accomplishment of the above aims, association activities be coordinated. Just last month the formation of the National Council of Textile Industries was the first answer to that plea. (See page 56.)

Altogether, the progress made in most of these directions makes us believe that some day the answer will be YES . . . without the IF.

THE EDITOR SAYS

TEXTILE WORLD, 1939 Model

This is the 1939 model of TEXTILE WORLD. It represents the culmination of a series of steps taken by the editors in collaboration with the Art Director and the Division of Editorial Research of McGraw-Hill Publishing Co.

The art director, Lester Beall, one of the foremost artists in the advertising field, has re-styled the format of the publication. At the start of the year the editors substituted an editorial cover for the former advertising cover, believing that they were thus making one more contribution to the paper's reader-service. Reaction from the field has confirmed that view. Mr. Beall designed the present cover.

This issue appears in the new dress he has given it—new headings throughout, new arrangement, novel shape of cuts, etc.

But the change is not merely one of appearance. For years the editors have been studying reader preferences, and adapting the publication to them. But during the last year, we have had an unusual opportunity to start on a new phase of that undertaking. The Division of Editorial Research, under the direction of Roy Eastman, one of the outstanding research experts in the country, has been investigating the reactions of readers, through a group of trained interviewers. The results have been utilized in the further improvement of the publication.

Just as one example, the survey confirmed dramatically the great interest which readers take in new machinery and processes. Consequently we have again expanded and improved that department, and have lifted it out as a special insert, printed on distinctive stock. (See page 69.) We predict for the newly-christened "Textile Equipment News" a long life, and a useful one.

• • •

This 1939 model of TEXTILE WORLD is no end in itself. As it goes to press, the editors are busy working on the 1940 model, because a publication, like a manufacturing company, cannot afford to stand still nowadays even long enough for self-congratulations. It must continually adapt itself to the new tempo—to the constantly changing technical and economic conditions of the field it serves, and to the ever increasing and diversifying demands upon its readers' time.

This current issue is TEXTILE WORLD's latest demonstration of its eagerness to practice what it preaches.

Wage Hour Hearings

Here are completely impartial observations on the wage-hour hearings:

1. The hearings were well organized and encouraged complete freedom of expression. Apparently the Administrator wanted no one to feel he hadn't had a chance to speak his piece.

2. No one who attended the hearing could escape belief that Elmer Andrews will give the entire testimony most careful consideration. This was not the cut-and-dried hearings so often held in Washington, where those in charge have their minds made up in advance.

3. Most telling point in support of the 32½¢ recommendation was probably the endorsement by two southern manufacturers, one of whom submitted names of several other southern textile men who support the recommendation.

4. Most telling point in opposition to the 32½¢ recommendation was the testimony of men who were members of Industry Committee No. 1 but who dissented from its action.

5. No one can predict the outcome, as not even Mr. Andrews knows it at this time. However, many who first believed there was no chance for rejection of the 32½¢, were so impressed by the opposition's case that they now think such rejection possible, and that merely the 30¢ mandatory minimum might be allowed to go into effect Oct. 24. Obviously, this is a horse-back opinion and worth just that much.

A Lesson from Over-Seas

We urge our readers to study particularly carefully the article starting on page 43 of this issue. This is a story about a mill in Czechoslovakia which has been shaping its management policies along the lines advocated so consistently in these columns: (1) research; (2) modernization; (3) production planning and control.

It shows how a mill which has vigorously put those policies into effect has obtained tangible results in the form of increased production and lower costs.

Get the Vulture!

Public Enemy No. 1 is not the Dillinger type. It is the vulture who feeds on the creations of other men's brains; the pirate who steals another man's successful ideas.

As we go around the country and see, for example, an ice-cream truck, painted exactly like those of an established company, with a "trade-name" almost identical, we are filled with loathing for a class of men who make a living merely by stealing the products of other men's genius.

The textile industry has been easy picking for such creatures. A new fabric is not only pirated; it is degraded into an inferior copy which fools the customers and ruins the market for the originator and, in fact, for the copyist.

And so we cheer for the Forstmann Woolen Co.'s courageous re-declaration of war on these creatures. It takes guts to come out and fight them. By doing so, the Forstmann company is guarding the interests of other manufacturers as well as its own.

If the industry can't protect itself against sneak-thieves, it might as well shut up shop and go home.

Foul!

If anyone is in doubt why labor unions have made such little real headway in the textile industry, all he has to do is to read the minutes of the wage-hour hearing in Atlanta. The despicable testimony designed to show the "deplorable" conditions of life in southern mill villages was typical of the tactics used by Gorman in 1934.

Those who, like this writer, have spent a good part of their business lives in contact with mill-village life, know only too well the contribution the textile industry has made to the social development of that section. Of *course* there are exceptions. But using them as samples is the sort of foul play which has made the southern manufacturers so bitterly anti-union.

Many writers and would-be reformers make a practice of depicting inaccurately the textile mill village life of the South. They can sometimes be excused, on the basis of ignorance. There is no such excuse in this case.

To date, textile unionism merely stews in the juice of its own stupidity.

High Efficiency of Czech Mill

Due to sound modernizing and research backed by progressive management

By ZDENEK SOCHOR

Through proper planning and control of production, establishment of a sound modernization program, and vigorous prosecution of research, the Jos. Sochor Textile Works has become one of the outstanding textile mills in Europe. The following article—by the co-owner and technical manager of the plant, describing his policies and tangible results obtained—is a valuable message to other textile men. Dvur Kralove n.L., the city in which the Jos. Sochor Textile Works is located, was a part of Czechoslovakia when this article was written, but is now in the German Protectorate of Bohemia.

THE JOS. SOCHOR TEXTILE WORKS is engaged in the weaving, printing and finishing of a variety of cotton, rayon, and silk fabrics. The company employs about 2,000 workers and produces 20 to 24 million yards of cloth a year. One of the unique features of the organization of this plant is that while we have decentralized authority, making each individual productive department self-governing, we have centralized the responsibility for development work and technical research. The results obtained since this system was installed have proved conclusively that the technological development department of a mill can be a paying proposition. The writer believes, therefore, that other textile men will be interested in the following description of the way in which we have developed new and improved equipment and processes through the coordination of scientific management and technical research.

Before discussing the details of the organization of our development department, it may be interesting to describe briefly one or two of the developments themselves. In a year we print between 5,000 and 10,000 different patterns on about 100 different types and constructions of cloth. We receive our orders directly from the retailers, and, if necessary, print single lots as small as 120 yd. In the height of the winter and summer seasons we have to deliver the largest possible quantities in the quickest possible time. We endeavored to simplify our production problem by standardizing on a smaller number of constructions; but, after a successful start, were forced to abandon this plan because of the depression in the early 1930's.

We then turned to the improvement of our technique. First we designed a machine for winding over 10,000 yd. of cloth neatly and evenly on one roll. As shown in Fig. 1, one of these rolls is from 6 to 7 ft. in diameter. We next devised a method for transporting these rolls from one department to another. (The photograph on our cover shows one of these rolls and the method of transporting it.—*Editor.*)

In the print works, fabrics are subjected to some 10 to 40 operations, depending on the type of material involved and the exact finish required. Therefore we established a production-planning system for the print works and set up the orthodox type of planning boards shown in Fig. 2. With this system, all fabrics which are to be subjected to the same operations are sewn together, wound into large rolls as previously mentioned, and progress in these large batches through the printing plant to the finishing department. By this combining of small individual lots into large batches, the work has been greatly simplified, production has been speeded up, and costs have been reduced.

In another instance we set out to improve the methods employed in our folding, inspecting, and packing depart-

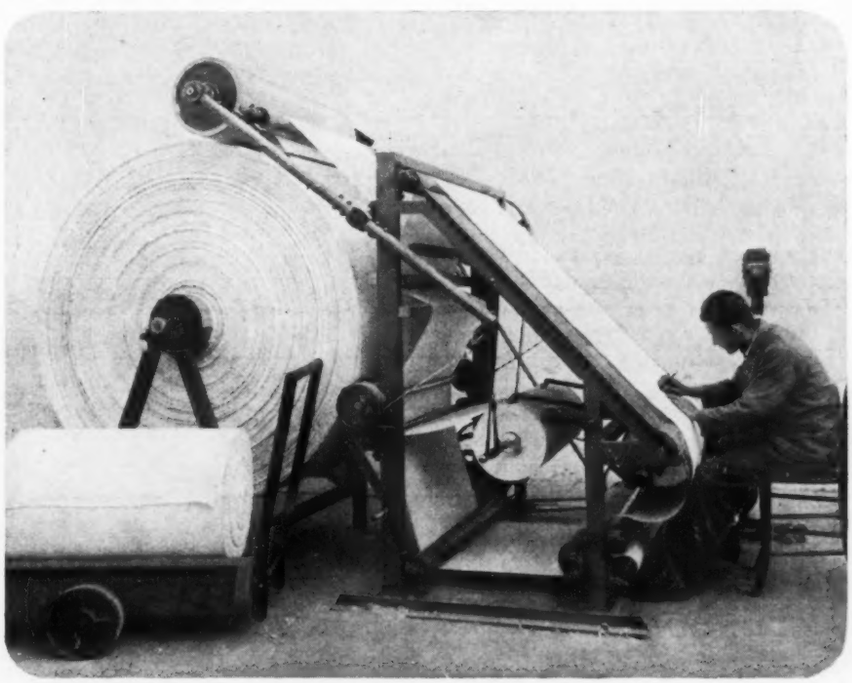


Fig. 1. Gray cloth is inspected and wound on 10,000-yd. rolls for delivery to printing department

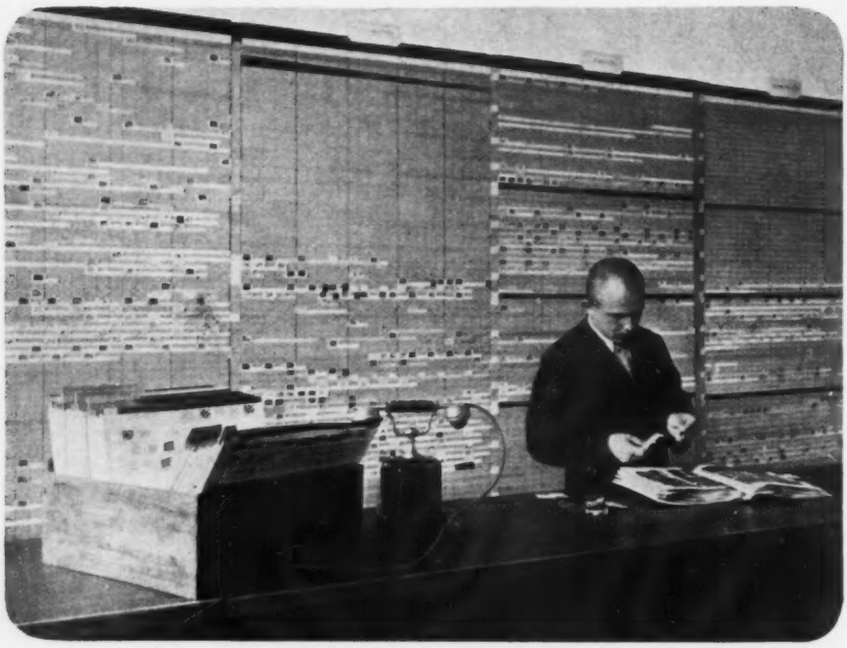


Fig. 2. A planning board facilitates control of production in the printing department

ment. Originally, the operators of the folding machines inspected the goods and were responsible for cutting out faulty places in the fabrics. We decided to divide this work into two independent operations. Accordingly, we developed a new type of apparatus which is attached to the inspecting machines and which makes a diagram of the faults in the fabric. The inspecting machines are shown in Fig. 3, and the apparatus for making the diagram is illustrated in Fig. 4. The duty of the operator of the inspecting machine is now confined to inspection of the cloth. The operator of the folding machine receives the goods, together with the diagram showing the faults, and calculates the most advantageous way of cutting pieces which have defects into good and faulty lengths. Further to improve the efficiency of the inspecting, folding, and packing departments, we installed mechanical conveyors for transporting the cloth from one machine to another. One of these conveyors can be seen in Fig. 3. Changes made in these departments have speeded up production and reduced the percentage of short lengths. Work of the inspectors and folders is checked up constantly to make sure that quality standards are being maintained.

IDEAS FOR IMPROVEMENTS. Several of our other developments will be described later, but first it may be well to discuss where we get our ideas for improvements and how we go about putting these ideas into effect.

Many valuable ideas originate with the superintendents of the productive departments. Incidentally, there are some department heads, although they are the exceptions, who believe they know all there is to know about their jobs and are not in favor of trying out any new idea which they believe will not work. Younger executives in the productive departments have many new ideas. Many of these men are recent graduates from technical schools; their theoretical knowledge is good; their ambition is great; their interest is keen. Some of their suggestions are good; others may be too optimistic and may not be practical.

We make it a policy to encourage, collect, study, reward, and introduce into practice technical suggestions made by foremen, second hands, and workers. Most of these suggestions are of a practical nature and relate to some particular detail of the work. In suggesting major developments, these men often neglect to consider the matters of cost, physical laws governing the practicability of the idea, etc.; however, in some cases the suggestions may be valuable.

Many suggestions come directly or indirectly from the sales department. These relate mainly to development of new fabrics, designs, and finishes. Because of his broad personal contacts with men both in his own plant and outside, the manager very often initiates new developments.

The research departments frequently make discoveries which lead to new developments in equipment, processes or products. The maintenance department seldom initiates development work along broad lines, but does introduce changes in materials and details of construction of equipment.

Outside sources of information include government and cooperative research institutes, consulting engineers, machinery manufacturers, technical periodicals, patents, cooperative agreements with other manufacturers, technical meetings, textile exhibitions, educational tours, etc.

In our plant the development department, which is connected with the chemical and mechanical research departments, keeps in touch with and collects all of the suggestions and other data from the various sources men-

Fig. 3. Inspecting machines have been equipped with devices for making diagrams of faults in fabric

tioned above. It then has the responsibility for initiating all new developments and for determining their scope, size, and method of introduction—all this subject to the final approval of the technical manager.

The development department cannot function successfully without the close cooperation of the productive departments. At least one man in the group which is working out a specific new development should be a skilled operative with experience in the particular operation which is being studied. If the development department is not familiar with every detail of the operation as it is now being performed, it has little chance of introducing improvements in that operation.

MODERNIZATION PLAN. In order to make certain that every department of the mill is kept up to date, we have adopted a schedule which insures a study of each department and process once every two or three years. This makes it possible for a small staff of well-qualified men to take care of the development work for the entire plant. The schedule is sufficiently flexible to be adapted to changes in trends or business conditions, but we endeavor to adhere to it as strictly as possible. When we introduced this system, we first made a study of mass production methods for printing; the next year we improved our cotton weaving methods; the third year we devoted to the development of new finishes; the following year we installed automatic looms for weaving the fancier types of rayon fabrics; and the fifth year we made further improvements in our cotton weaving department. An automatic shuttle-changing loom which we developed for weaving rayon fabrics is shown in Fig. 5.

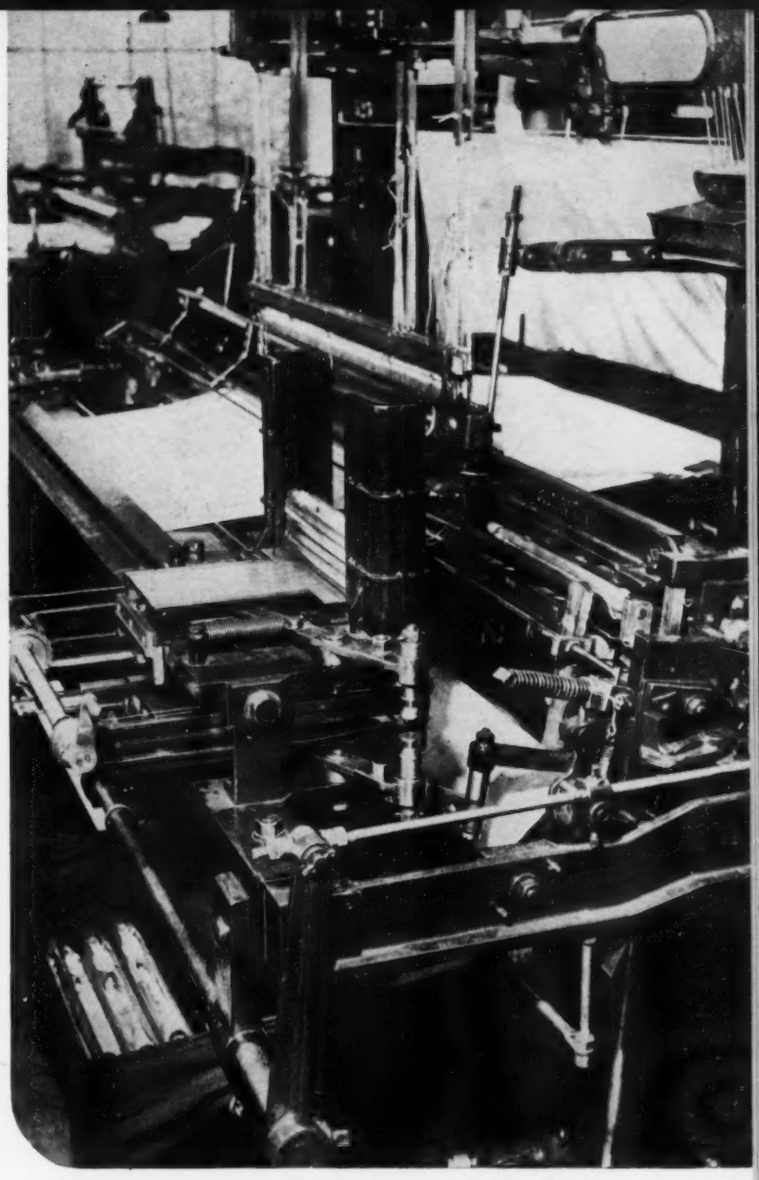


Fig. 5. Automatic shuttle-changing loom developed for weaving rayon fabrics

Development of new finishes may show the possibility of manufacturing entirely new products. Thus, in our case, introduction of the anti-crease finish led to the establishment of a department for manufacturing neckties. Fig. 6 is a view in this department.

Our development work in any part of the plant starts with a study of the existing methods which we are employing and of the results obtained. These are compared with methods in plants to which we have access abroad. At the same time, periodicals, patent literature, and books pertaining to the subject under investigation are studied. The suggestions made by our employees are carefully scrutinized. Complaints from department heads and operatives are analyzed. Any complaints received from our selling agents or customers concerning our products are taken into account, and their requests for new types of finishes or products are considered. In this way our development work is carried out methodically.

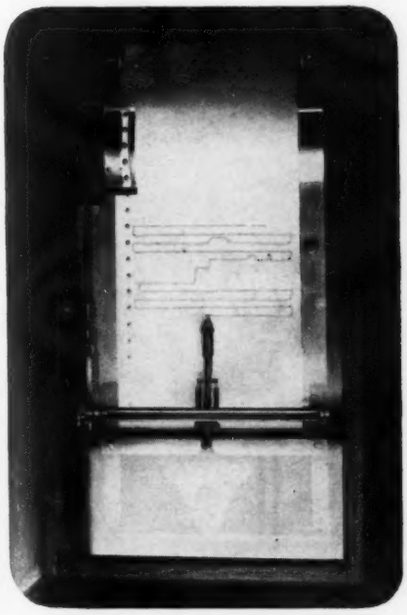


Fig. 4. Apparatus makes diagram of fabric defects

The men employed in the development department acquire a broader viewpoint than those working in some one productive department. Hence, they are able to compare the efficiency of the methods and equipment used in different departments. Likewise, they acquire the ability to adapt developments which have been brought out in other industries.

Often the efforts of the development department are aimed at some particular result; e.g., the elimination of waste of color in our print works. In addition, the importance of true invention of entirely new products or processes is not overlooked. However, over-emphasis on the inventive phase of development work can be dangerous to any industrial organization.

In the past many individual inventors have died poor, although their inventions were successful. Somebody else reaped the benefit. In most cases today an individual cannot properly exploit his invention; it must be done by a company or corporation. And it has frequently occurred that an industrial organization has gone out of business because it exhausted its resources in attempting to perfect inventions which apparently held great promise, but which could not be made commercial successes.

It is extremely important, therefore, for the management to scrutinize carefully all of the ideas for "great inventions," and to select for further development only a few of the many suggestions for new equipment made by inventive geniuses.

There is a real risk attached to the development of any major invention. To determine whether or not one should take the risk, the probable cost of the development work should be calculated and balanced against the possible sav-

Fig. 6. Introduction of the anti-crease finish led to establishment of a department for making neckties

ings which will result if the invention proves successful. The management should decide the maximum amount of money and time that will be spent on the development, after which work will be stopped, even if there is still hope for success. Decision must be made whether or not to apply for patent protection. Costly development work should never be started without first making a thorough search on an international scale of all patent and other technical literature to determine whether the idea is actually new. Incidentally, we have found that by keeping abreast of world trends and developments in the textile industry, we are able to predict with considerable accuracy whether or not other companies are working on the same problems which we are.

DEVELOPMENT WORK AND MANAGEMENT. If the men responsible for production planning and control, time studies, etc., are well versed in the technical phases of textile manufacture, while they are endeavoring to improve the efficiency of a department, they will unexpectedly discover methods for improving equipment and processes. Conversely, members of the development department, while designing and installing new machinery and processes, may discover ways to increase the efficiency of the department through better planning or allotment of work.

Thus, when we start to study a department according to our regular schedule, we may find that it can be improved from the standpoint of organization and management, as well as from the standpoint of equipment and processes. We then must decide what to do first.

Obviously, if the department is well organized, but the machinery is obsolete, installation of new equipment is the first step. On the other hand, if the machinery is up-to-date, but the organization of the department is faulty, improvement of the organization comes first. Frequently, however, we find that neither the organization nor the equipment is perfect. In this case, there are three procedures from which to choose.

First, improvements in technique and departmental organization can be made simultaneously. This is feasible if the department is an important one in relation to the whole plant, if there is a demand for a greatly increased output, if money for capital investments can be obtained at a low rate, and if the results obtainable justify the expenditure of time and money required.

Second, improvements in technique can be made first. This is usually advisable when the equipment and processes can be improved without a large investment. Then as the men in the development department break in the new machines and teach the operatives how to run them, they learn just what can be expected of the new equipment and how much it has improved working conditions. As a result, they are better able to advise as to how the organization of the department can be improved and better wage-payment and bonus systems devised.

Third, improvement in departmental organization can precede improvement of technique. This may be advisable in the event that development of the new machinery necessary will require a considerable length of time. Again, when business is slack, money scarce, and market possibilities are limited, a firm of industrial engineers may be able to improve the departmental organization and effect economies in labor and materials without costly experiments and without new equipment. Then, as soon as the new equipment is developed or business improves, the improvements in technique can be made.

It sometimes happens that improvements in production planning and organization of departments are badly needed, but, because of the large number or variety of orders handled, only costly and complicated planning or control systems would serve. In such cases, the technical development department may be able to devise changes in the methods of handling the goods which will simplify the planning and control of production. Development of the method, previously described, for winding cloth on large rolls and combining small lots into large batches in our print works is a good example.

There are many operations in textile mills where the labor cost is only a small percentage of the total production costs. This is particularly true in the dyeing and printing departments. In such instances savings in the expensive materials employed are much more important than savings in labor. We endeavored to work out a system for such departments whereby operatives of each production unit would share in the savings made. However,

due to the large variety of materials employed and the various conditions under which they are used—many of them not under control of the operatives—we found that this savings-sharing system did not always work well.

We discovered that considerable amounts of dye liquors were being wasted needlessly, and it was suggested that the development department might be able to overcome this. Acting on this suggestion, the development men designed a cascade gravity system for dissolving dyes and introduced the use of compressed air for transfer of liquids —a principle commonly used in the chemical industry.

Next the development men designed a rugged device for maintaining a constant liquid level in padders and similar equipment, together with a simple pneumatic pressure tank for feeding solutions to the constant-level troughs. Two of these pressure tanks are illustrated in Fig. 7. After these devices had been installed, it was found possible to reduce the volume of the solution in the dye padders.

Time studies made in the color shop when we were investigating the possibility of introducing the savings-sharing system showed that a great deal of time was being wasted in waiting for the printing pastes to cool. The technical development department was again called upon, and soon devised what we call cooler-stirrers for the color kettles. With these stirrers, shown in Fig. 8, cooling time was reduced to a fraction of that required previously.

One thing which we have learned is the value of keeping posted on methods and developments in other industries, rather than merely on those in the textile industry. The following is an illustration of this point. In our print works we have a stock of several thousand printing rollers weighing some 175 lb. each. It formerly was general practice—in Europe, at least—to handle these rolls manually. A few years ago our development department made a study of the methods of materials handling employed in other industries. As a result of this survey, we developed a new type of mechanical handling device for printing rolls. As can be seen from Fig. 9, this device makes use of several well-known principles, including that of the traveling crane employed extensively in the steel industry. This type of equipment (sometimes with an electric drive) is now generally employed in European print works and, to some extent, in South America. It will also be noted from Fig. 9 that the rolls are now stored in separate compartments. They take up comparatively little floor space, and are protected from damage.

Incidentally, study of new developments in other industries is one of the easiest ways to obtain ideas for improvements of a patentable nature for textile equipment and processes.

MACHINERY BUILDERS. A considerable part of the development work relating

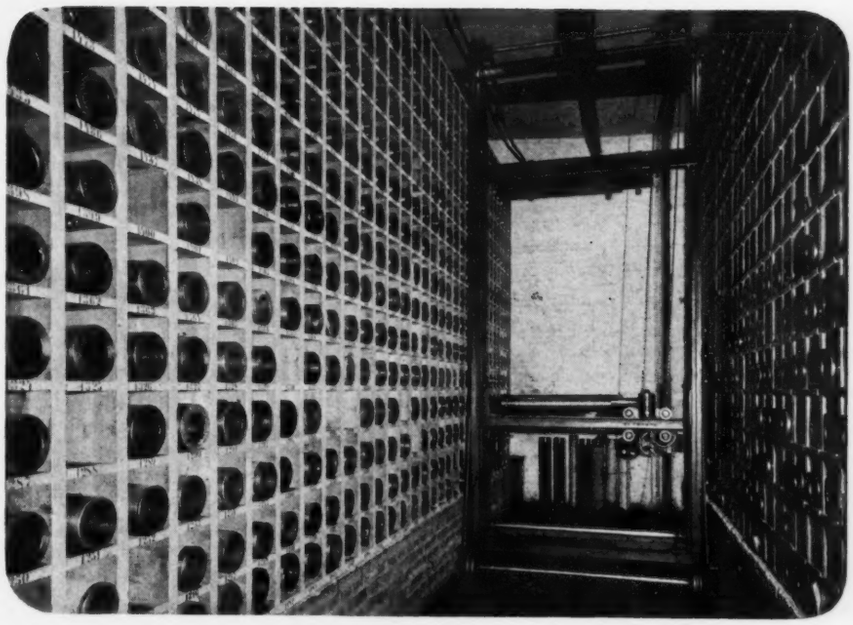


Fig. 9. Printing rollers are handled mechanically and stored in separate compartments

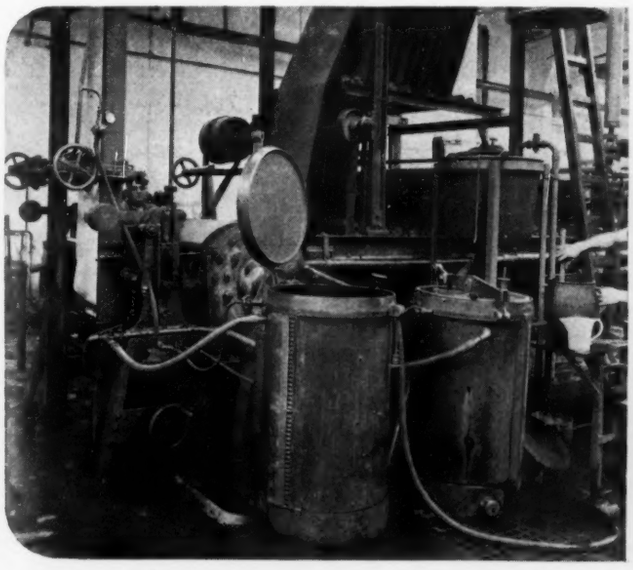


Fig. 7. Pneumatic pressure tanks are used for feeding solutions to padders and to similar types of equipment

Fig. 8. Color kettles have been equipped with special cooler-stirrers which reduce time required for cooling printing pastes

to textile equipment is due to the efforts of the machinery builders. These companies are vitally interested in technical research. In some respects the machinery builder has an advantage over the individual mill.

First, the machinery company receives suggestions, information, and complaints from all of its customers; it learns something from every new order. Second, the machinery builder has the experience, personnel, and equipment needed for this type of work. Third, the machinery company is forced to carry on technical research in order to bring out something better or different than the machines produced by its competitors. Fourth, the machinery builder, because of his larger output, can produce equipment more cheaply and sell it at a lower price, spreading the cost of research over many orders.

In some respects, however, the machinery manufacturer is at a disadvantage in the matter of new product development. First, in the majority of cases the machinery builder does not have any intimate every-day connection with a textile mill; he does not directly encounter the difficulties involved in operating the plant; he does not know where to try to obtain the biggest savings in labor or material, or where to increase the output. Second, an individual machinery manufacturer seldom is familiar with all the different types of machinery in a mill. Third, the machinery manufacturer doing large-scale development work has a double risk—he takes the risk that the new machine will not prove satisfactory, and the risk that, even if it is satisfactory, he will not be able to sell it in sufficient quantities to insure a profit. Some mills are willing to put in an entirely new type of machine on trial, but are seldom willing to work long with the machinery manufacturer in eliminating faults which may show up after it is installed.

Cooperation between the development department of the mill and the machinery manufacturer is in many cases the best solution of the problem. If a large textile mill indorses the undertaking of extensive development work on a particular type of equipment by a machinery manufacturer, the latter does not run any risk that the machine will not have a fair practical tryout. If unforeseen difficulties are encountered when the machine is first installed, the mill has sufficient interest in the development to see that attempts to correct the troubles are not abandoned at too early a date. Further, if the machine or process proves successful in one large mill, the job of introducing and selling it to the industry is made much easier.

There are many forms of this cooperation between textile mills and machinery manufacturers, and no hard-and-fast rules can be set down as to the best degree of cooperation. The following examples—right or wrong—of what we have done in our own company may be of interest.

DEVELOPING NEW MACHINES. We developed in our plant the method of making 10,000-yd. rolls of cloth and built all of the devices for our own use; the machines are simple in construction and do not embody any radically new ideas in design. We did the same with the devices for conveying solutions and maintaining a constant liquid level in padders; our experience in this case indicated that it would have been better if we had cooperated with a machinery builder. We made the first mechanical handling device for printing rollers, and subsequently had further improved models built by a machinery manufacturer who was experienced in making similar types of equipment.

In the case of automatic looms for special purposes we did part of the designing work and carried out all of the experiments; a loom manufacturer did the rest of the designing and built the looms on contract.

After careful study, our development department came to the conclusion that our engraving machines and all other engraving machines on the market were far behind modern metal-working machinery. We felt that it would be a mistake for a textile mill to attempt to design metal-working machines. Accordingly, we communicated our ideas to a machinery company in which

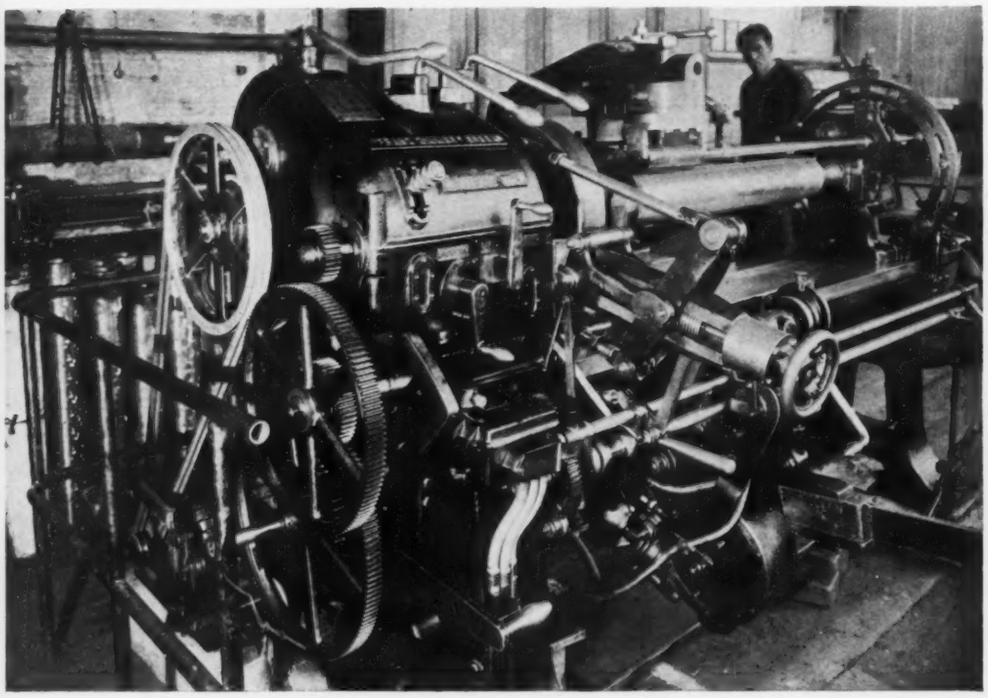


Fig. 10. Semi-automatic engraving machine developed in cooperation with a machinery company

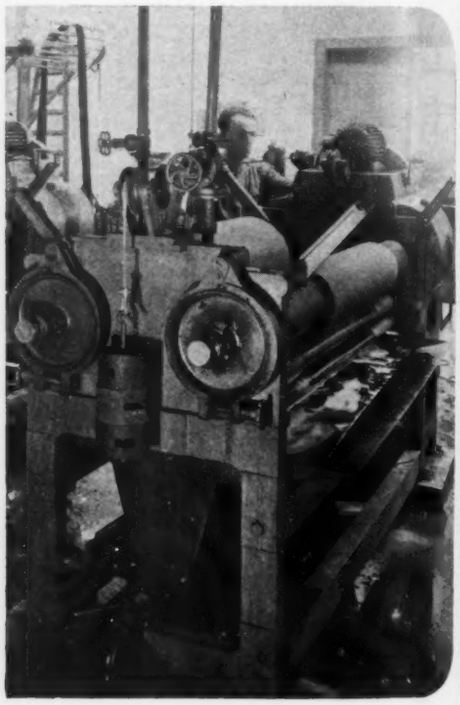


Fig. 11. Jig with small-capacity dye box effects saving of color

we had confidence. This company designed and built the machine for us and we made all the practical tests with it in our engraving shop. We obtained satisfactory results and, we believe, at a minimum of expense. This semi-automatic engraving machine with power-driven mill is shown in Fig. 10.

Two of the various other devices we have developed are illustrated in Figs. 11 and 12. Fig. 11 shows a jig with a small-capacity, color-saving dye box. Fig. 12 illustrates an ager which we developed for use in printing with Rapidogen colors.

It is our experience that when designing new machinery, the simpler the equipment, the less necessary it is to cooperate with the machinery manufacturer at the start. The more complicated the equipment, the sooner is cooperation with the machinery manufacturer advisable. We are convinced that it is a mistake to build equipment which is already on the market, copying it or changing it just for the sake of making it different. The expense and efforts required to do this are much larger than one imagines, and the undertaking seldom proves profitable—usually the opposite.

It is always possible for a textile mill to exploit its machinery and process developments outside its own plant. The first thing to decide is whether to retain the development for one's own exclusive use and to keep it a secret if possible. If it is decided to permit others to use the development, the complex question of patent protection has to be solved. All of the devices illustrated in this article, for example, have been patented. Then it is necessary to estimate the value of the patent, decide on the method to be used in licensing other companies to use the invention, and make plans for the manufacture and marketing of the machine. All of this is under the jurisdiction of the development department, but a discussion of the problems involved is outside the scope of the present article.

MAKING IT PAY. We believe that the development department, to be justified, should be a paying proposition. To make sure that it is, we use the following system.

The development department is charged with all expenses which it incurs. These expenses include salaries and wages of personnel, materials used, cost of obtaining patents, etc. In turn, the development department sells to our manufacturing departments whatever it develops in the way of new or improved machines or processes.

In some instances we prefer to have the development men run a new department or a new unit of the plant until the difficulties always encountered in starting a project are overcome. As long as the development department is in actual charge of a productive unit, it is charged with all of the expenses of that unit, and credited with all income. The development department is credited with all income from patents and licenses; but from this income has to pay all bonuses given to employees in the plant, or to members of its own staff, for suggestions or inventions of which use is made.

We keep careful records of the costs of every operation in our plant. Whenever the work of the development department results in a saving in cost, the net saving for a one-year period is credited to that department. If the work of the development department increases the cost of a productive unit, it is charged with that increase. The one-year period may start as soon as the development work is finished, or the development department and the productive department may agree to defer the beginning of the one-year period until any difficulties attending the introduction of a new development are ironed out. Members of the development department are paid a bonus out of the earnings of that department in order to keep them financially interested in the results. In this way we try to make certain that the technical development work pays, and we are able to determine from year to year just how much it actually is paying.

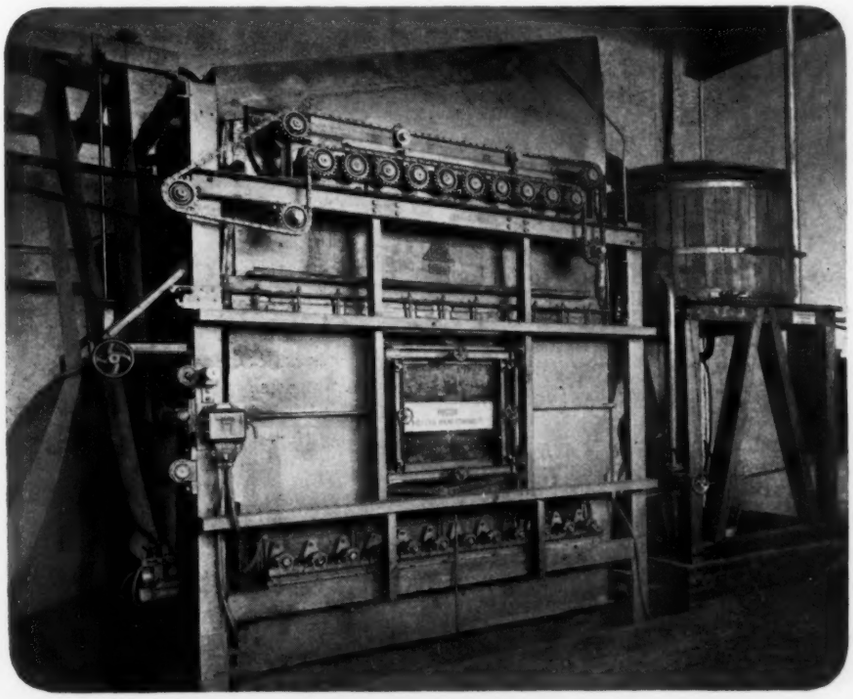
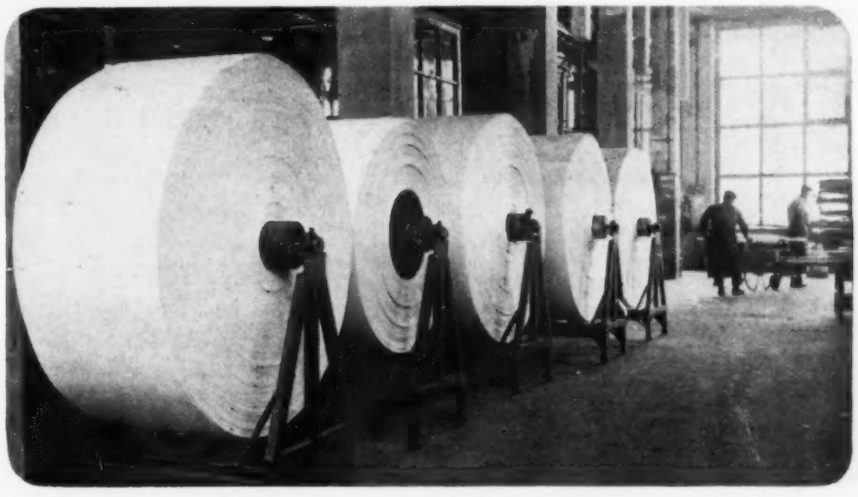


Fig. 12. Haveg ager for Rapidogen colors is equipped with acid recovery plant. **Fig. 13** (below). Large cloth rolls in print works



Wage-Hour Road Show on Tour

Plays on home grounds in Washington and then in hostile territory in Atlanta

AS WE WRITE this, the Wage-Hour Textile Road Show is still on tour. After playing a week in what might be called its home-town, Washington, it moved into foreign, and hostile, territory in Atlanta, Ga., for a two-weeks stay. If its "public" insists on more, after July 8, it will resume in Washington.

As a show, it possessed the drama which always goes with contest: the tense antagonism between two bitterly opposed points of view. The point at issue, of course, was whether Elmer F. Andrews, administrator of the wage-hour act, should accept or reject the recommendation of Industry Committee No. 1 for a 32½¢ minimum wage in the cotton, silk and rayon industries.

In support of that recommendation was the majority committee itself, represented by counsel. Major backing for that viewpoint came from the New England industry, represented in part by the National Association of Cotton Manufacturers, and from communities dependent on it; and from textile unions in both camps of organized labor.

The spear-head of the opposition was the minority committee, also represented by counsel, and backed by American Cotton Manufacturers Association.

On the one side was the plea that low wages in the South had enticed a large part of the New England industry to that section, and that only something like this equalization of wage minima could prevent further disaster and unemployment in the North. On the other side was the plea that, unless the South was given a wage differential similar to that which existed under the NRA, numbers of small mills would be forced to close, and their employees be forced upon relief.

That is a human presentation of the problem. The main technical question which Administrator Andrews has to answer to his own satisfaction, before he gives his decision, is whether or not the flat 32½¢ minimum would result in substantial unemployment. There are several other side issues, but that is the primary factor.

Prologue at Washington

BOTH the performers and the audience at the Washington part of the hearings, during the week of June 19, seemed to realize that they were participating in and observing merely a curtain-raiser, and that the real act was scheduled to start in Atlanta the following week. Whether for that reason or for some other, there was little in the way of ill-feeling manifested on either side. In fact at times the extreme courtesy shown by one group of lawyers for one of the other groups became almost "heavy," and made one wish for just a little skirmish to give the proceedings more animation.

Elmer F. Andrews, administrator of the wage-hour act, was his usual quiet, unobtrusive self, and seemed determined to give as complete latitude to witnesses and their questioners as was possible. Certainly, the testimony and the discussion got far off the track at times but apparently the administrator wanted everyone to feel that he had full opportunity to be heard. Actually, the important points developed during the Washington part of the hearings could have been brought out and properly emphasized in one day instead of five.

The testimony heard at Washington was presented by the proponents of the 32½¢ minimum, and the other side was heard at that section of the hearings only through the cross-examination of the witnesses by the counsel for those opposing the recommendation.

The principal presentation of the argument of the majority of the committee, those favoring the 32½¢ wage, was offered by Arnold Tolles, assistant chief economist of the wage-hour division. He emphasized as his principal points the contentions that the proposed wage, if put into effect, would not appreciably curtail employment; would not dislocate competitive relationships; would not hurt the consumer. It is his conviction that only a small percentage of the workers in the industry as a whole would be affected—possibly some 5%, and that consequently this could make little difference in the rate of employment or in the price of the goods to consumers. Naturally it was on this question of "appreciable" unemployment that the questioners for the opponents hammered.

Those from the textile industry who supported the 32½¢ minimum included representatives of some of the important associations. Russell T. Fisher, president of the National Association of Cotton Manufacturers, argued that the minimum wage should be the same in the North as in the South, on the basis that between the two regions there is no substantial difference in transportation costs, living costs, production costs, or other factors. Furthermore, he stated that even if the minimum wage was set at 32½¢, the average wage in the North would be four to five cents higher than the average in the South. He was confident that the recommended minimum was economically feasible and would not substantially curtail employment.

Mr. Fisher was followed by a large number of representatives of important northern mills who gave substantiating testimony. One of these, Fred W. Steele, general manager of Pierce Brothers, Ltd., New Bedford, Mass., also represented eight other mills of that city. He concluded his testimony with this strong statement: "I believe that as a result of this minimum of 32½¢ per hour, any increase in the retail price of textile products will be negligible, but the consuming power of textile employees will be greatly increased, which will be beneficial to all, and with the industry stabilized, as I believe it will be, it will increase employment rather than cause unemployment."

Appearing for the group of mills engaged in weaving silk and rayon fabrics comprising the membership of the National Federation of Textiles, Miss Irene L. Blunt, secretary, stated that the manufacturers for whom she spoke realized the need for gradual and realistic treatment of regulated wages and hours, and the need of avoiding too sudden a rise in price, but nevertheless regarded the 32½¢ minimum as "reasonable in the face of all these considerations."

"It is not a question solely of equalizing conditions," she said. "There can be no equalization in an industry where

General view showing Emil Rieve on the witness stand (before the mike) being questioned by Tyre Taylor. Elmer Andrews shown at extreme left. Scene is at wage-hour hearings at Atlanta, Ga.

local conditions, efficiency of equipment, differences in distribution costs, even in mills located in the same local area, etc., vary as much as they do in this industry. But the 32½¢ rate appears to be what the word minimum implies: a reasonable rate below which no employer may go in paying his workers. There are, and will be, many mills whose minimum will be higher than this but at least it will take care of that fringe of the industry where operations are based on the narrowest of operating margins and where cost of production must be kept to the minimum if it can survive at all."

From a news angle, the appearance of two southern textile manufacturers in behalf of the proposed 32½¢ minimum was really the outstanding feature of the Washington part of the hearings. Furthermore, no one could accuse these two men of being transplanted northerners rather than southerners. Both have their roots deep in the South. No matter how much some of their fellow southerners may have disagreed with the point of view expressed by these two men, they had to admire their courage for coming out and expressing their viewpoint frankly, in the face of an apparently overwhelming attitude on the other side, in that section.

One of these witnesses, Wm. A. Moorhead, agent of Joanna Cotton Mills, Goldville, S. C., estimated that the proposed minimum would raise his total manufacturing costs only about 1%, and would not affect the sale of his product. He does not believe the South is entitled to a wage differential as against New England. He also does not think the 32½¢ minimum would curtail employment or affect competitive conditions in the industry.

Similarly, Hyman L. Battle, treasurer and general manager of Rocky Mount (N. C.) Mills, supported the 32½¢ recommendation, and stated that he did not believe the proposed rate would put small plants out of business. Mr. Battle had been authorized by several other southern manufacturers to quote them as approving the 32½¢ recommendation. These included A. G. Myers, receiver of Textiles-Inc., Gastonia, N. C.; C. S. Tatum, manager of Pilot Mills Co., Raleigh, N. C.; E. N. Brower, treasurer of Rockfish Mills, Hope Mills, N. C.; S. P. Cooper, president of Harriet Cotton Mills, Henderson, N. C.; J. C. Gregson, treasurer of Hadley Peoples Mfg. Co., Siler City, N. C.; O. M. Bundy, treasurer of Oakdale Cotton Mills, Jamestown, N. C.

The parade of witnesses at the Washington part of the hearings included, in addition to textile manufacturers and their representatives, chamber of commerce executives, various State and municipal officials from New England, members of Congress, etc.

Fireworks at Atlanta

THE WAGE-HOUR hearing before Administrator Elmer F. Andrews, in Atlanta, beginning Monday, June 26, called forth a wide divergence of testimony. Economic experts, college professors, labor organizers, mill presidents, mill hands, and textile cost experts presented evidence in a rapidly changing panorama of views, designed to clarify the issue but, to this correspondent, only serving to demonstrate the widely divergent viewpoints of the various groups.

Prof. H. C. Nixon, of the University of Oklahoma, heard in the opening hours, qualified as an economic expert and had ready answers to all questions which followed the presentation of his prepared statement. He got a good laugh from the assembly, however, when, after describing the inadequate housing conditions in the so-called marginal mills of Mississippi, he admitted that he had never been in a Mississippi mill village. Questioned by Ben Cameron, representing the Mississippi manufacturers, Prof. Nixon said that if the textile mills in that State could not survive the 32½¢ minimum wage, they should close up in the interest of the entire industry and the workers go on relief.

The plight of the marginal mill, usually referred to as the mill that is continually struggling for existence, was discussed by many of the witnesses. Modernization was suggested as a remedy and the raising of the purchasing

power of the people as a whole, through introduction of higher wages, was thought by several witnesses to have a bearing on the unfortunate status of these mills.

The labor forces tried to bolster up their cause by introduction of two mill workers, B. F. Thomas, of Douglasville, Ga., and Paul Fowler, of Chattahoochee, Ga., who painted graphic pictures of living conditions in their communities. Unsatisfactory housing, bad sanitary arrangements, poor health, debts, meager food supply were all attributed to the low wage scale now being employed. "I'm ashamed of my home," said Paul Fowler. "One of the boys fell through the floor last week. My wife's a heavy woman, and I'm afraid she'll go through next. None of us has been killed so far."

Considerable testimony was later introduced refuting evidence of unsatisfactory living conditions in mill villages. Referring to Paul Fowler's story, Miss Miriam Duncan, of Chattahoochee, Ga., said this man has not lived in a company-owned house since 1936, and has not given a true picture of their village.

W. M. McLaurine explains the situation to President Frank Graham. Tyre Taylor, at left, and J. A. Miller, of Exposition Cotton Mills, at extreme right

AN ABLE WITNESS of another type was Frank P. Graham, president of the University of North Carolina, Chapel Hill, N. C. Dr. Graham stressed his southern origin and his experience in the field of human relations. "It is the part of wisdom," he said "to question the wisdom of any drastic change." He accorded sincerity of purpose to those opposing, as well as to the proponents of the industry committee's majority report, and stated that, in his opinion, the adoption of the 32½¢ minimum was not unreasonable. "Social legislation does have its casualties," he said, "and it is conceivable that some might result in this instance." A betterment of the entire industry might be the result.

Witnesses from the industry located north of the Mason and Dixon line were also heard. One witness from Philadelphia got quite a laugh—because of his accent—when he made the emphatic statement, "I am not a Soudderner." This witness, Emil Rieve, president of the T. W. U. of America, brought out that the minimum wage in the South in 1937 was 33¢ per hour. "Mills resort to wage cuts," he said "not to meet competition but to raid the markets." He stated that, in his opinion, the 32½¢ minimum would have little effect in mills other than those in the South and would not affect all Southern mills.

PROPONENTS of the committee's majority report bent every effort to attempt to establish the fact that unemployment would not be materially increased and that workers actually displaced could be absorbed in other mills. Chas. A. Cannon, a member of the Industry Committee No. 1 and one of those who signed the minority report, stated that this could not be done. "We employ about 20,000 people," he said, "and if the 32½¢ minimum is adopted some 2,000 employees will be dropped." His mill already has a long waiting list and he did not think additional names on this list would make the situation any better. Mr. Cannon, who was presented as a witness by Tyre Taylor, counsel for the American Cotton Manufacturers Association, appeared as representing the minority of the committee and succeeded in introducing a severe criticism of the lack of investigation on the part of the committee of several factors that should have been more carefully considered. In his opinion, a more gradual advance of the minimum wage would be far less dangerous. Some of the factors which should have received more careful study were: freight rates; annual wage; situation in regard to the marginal mills; unemployment resulting from closing of these mills; obsolete equipment; net increase in purchasing power; reciprocal trade agreement. The cotton export subsidy and cotton loan program should now be investigated.

K. P. Lewis, president, American Cotton Manufacturers Association, appeared at Mr. Taylor's request and presented a carefully prepared statement. Questioned by Mr. Taylor, he said that, in his opinion, many of the marginal mills would be forced out of business, if the 32½¢ wage minimum is adopted. He thinks these mills should be given an opportunity to adjust by a more gradual advance. If these mills close, very few of the operatives could get jobs in other mills, as all of his mills have waiting lists. He thought the reciprocal trade program should be investigated by the committee, also the cotton loan program of the U. S. Government, which has increased the difficulties of the mills. The condition of the cotton market also should be investigated before this minimum is adopted.

In his prepared statement, Mr. Lewis said in part: "Great inroads are being made in the cotton textile markets by jute and non-textile substitutes such as paper. In connection with the competition from paper, it should be emphasized that the cotton textile industry is competing with a highly mechanized industry in which labor costs are relatively less important. Despite the impact of these forces upon the industry and on all those associated with it, the relative amount of the industry's income going to wages not only did not decrease, but, in fact, actually increased. This is indicated by testimony before the industry committee.

"Much has been put into the record of wage levels of the Southern branch of the industry, and in this connection I wish to point out that, whereas the cotton textile industry in the North is a low wage industry as compared with other industries in that section, this is not true of the cotton textile industry in

the South. Cotton textile wages in the South are neither at the top nor the bottom of the general Southern wage structure, but occupy a position somewhat above the average for that area. This relative position will be further improved when the 30¢ minimum becomes effective in October, so that, whether the recommendations of Industry Committee No. 1 is approved or disapproved, cotton textile wages in the South cannot fairly be said to be out of line with the average industrial wage scales and levels of that section. Furthermore, they are much higher than many other occupations, as, for example, agricultural workers."

Mr. Taylor then introduced several men connected with smaller mills. Wm. Harry Entwistle, of Rockingham, N. C., said that his mills could not absorb an additional labor cost under the present market condition. He could not prophecy what would happen if the 32½¢ minimum was adopted. John R. Youngblood, vice-president and general manager, Hart Cotton Mill, Tarboro, N. C., estimated that his mill would sustain an annual loss of $55,000 if 32½¢ minimum was adopted and that he expected to close the mill down. Tarboro has a population of 6,500. The workers would probably go on relief, he added.

"This should be a fight between labor and the farmer," said Frederick Moore, textile cost expert of Charlotte, N. C., "and not between labor and the mill owners." Mr. Moore introduced as evidence tables and charts showing the stake labor had in the total cost of cotton sheetings and demonstrated that the losses through several significant periods of cotton cloth production had come out of the farmers' pockets to a large extent.

Donald Comer, of Birmingham, Ala., whose mills have 7,500 employees on their payrolls, made an eloquent appeal for cooperation between the various manufacturing sections of the country. In his opinion, the 32½¢ minimum would cause further unemployment in the South, and might increase employment in the North. He pleaded for better tariff protection, an adjustment of freight rates, an end of sectionalism, and for American markets for American goods.

The mill men of the South are striving earnestly to arrive at a working basis that will permit them to make adjustments over a considerable period of time, in gradual steps, rather than be forced to adopt statutory lower limits to the wage scale that might conceivably disrupt the present social economy, Mr. Comer said.

Further criticism of the committee's report was introduced by Robert R. West, president, Riverside and Dan River Cotton Mills, who concluded that the freight rate discussion had been dismissed without sufficient development. Development of this question, however, was not lacking at this session. Tyre Taylor called on L. O. Kimberly, Jr., of Atlanta, Ga., assistant manager, traffic department, American Cotton Mfgrs. Association, who submitted as evidence a carefully prepared analysis giving prevailing rates by rail, water, and combination routes from the principal interested areas of the South, and the East, to the main markets. Severe cross examination by counsel for the committee and for labor failed to undermine the strength of his testimony. Further statistics supporting his contentions were introduced by P. H. Johanson, of Washington, D. C.

An authority on southern mills, with 32 years close contact with the industry, went on the stand in the person of J. E. Sirrine, of Greenville, S. C. Mr. Sirrine is president of the engineering firm of J. E. Sirrine & Co., is an officer or director in 23 mills, and has contributed largely to the development of this branch of industry in the South. As did so many other witnesses, he emphasized the probable increase in unemployment, and speaking directly to the administrator said that the problem at issue was not sectional, but was solely one of determining whether or not employment would be reduced. He recommended leaving the present law alone. "Let it function," he said, "and see what happens." As an estimate, and purely as an opinion, he thought from 10 to 20 thousand employees would lose their jobs if the 32½¢ min. were adopted.

With the consent of the administrator, Tyre Taylor arranged to show a moving picture film showing the activities and home life of the employees in the Avondale Mills, at Sylacauga, Ala. This was not submitted as evidence, but was shown to the entire group attending the hearing for what it was worth as information. The picture tells a lively story of work and play and might be considered as typical of the modern, well-managed mill of the South.

A political complexion was given the hearing when Gov. Hugh White, of Mississippi, and Gov. Frank Dixon, of Alabama, addressed the administrator. Lack of tariff protection; high cost of credit; need of freight rate adjustments, all imposed an unfair burden on the industry of the South, said Gov. White. "As social legislation," he said, "the act is not to deny a competitive advantage to any section." He insisted that all the South asks is fair play. Gov. Dixon stated that he was also authorized to speak for Gov. Bailey, of Arkansas, and that he supported the recommendation of the minority committee. He criticized the majority committee's action, stating that, "twelve out of twenty-one members are out of sections which have always sought, and succeeded, in keeping us in economic subjection."

An interesting economic lecture, based on experiences and studies over a long term of years, enlivened the day's proceedings when Dr. S. W. Dyer, of Vanderbilt University, Nashville, Tenn., took the stand. Dr. Dyer traced the development of the industrial life of the nation, dwelling at length on the decentralizing effect of the "electric and gas revolution" which is continuing to drive industry out of the great centers of population into the small towns and rural districts. "The South is not the economic problem No. 1 today; the East is that problem," said Dr. Dyer. The 32½¢ min. in his opinion would throw an army of men, women and girls out of employment. Dr. Dyer is a militant objector to the entire wage-hour program.

Hearing on Hosiery Wage

HEARINGS on the proposed minima of 32½¢ in the seamless hosiery industry and 40¢ in the full-fashioned industry, were held before Administrator Andrews in Washington during the week of June 12. The principal presentation for those in support of the recommendation was made by Earl Constantine, president of the National Association of Hosiery Manufacturers. In a careful analysis, Mr. Constantine pointed out that the low-end manufacturers would sustain a much larger percentage increase in their labor costs than would the other manufacturers in the industry and that this increase would have to be passed on to the wholesaler or retailer, in the form of increased prices. The total wage bill of the seamless branch would be increased by 7.3%, which would mean an increase by only about 2% in the over-all manufacturing costs, therefore necessitating no price readjustments for the industry as a whole.

The principal spokesman for the opposition, in the hosiery case, was H. L. Arthur, of Excel Hosiery Mills, Union, S. C., representing a group of some 40 southern mills. He clearly indicated the intention of this group to carry the fight to the Supreme Court if and when the committee's minima were put into effect.

Vinyon's Properties

New synthetic fiber just patented has many potential uses in textile industry

FURTHER INFORMATION on Vinyon, the new synthetic fiber developed by Carbide & Carbon Chemicals Corp., was made available last month with the granting of U. S. Patent No. 2,161,766, covering the production of the fiber and of yarns and fabrics made from it. Vinyon has been produced on an experimental scale for somewhat over a year, and announcement of its commercial production and plans for marketing the product is believed to be imminent. Properties of Vinyon of particular interest to textile men include high elasticity and elongation at break; high tensile strength as compared to rayon; resistance to water, acids, and alkalis; and good dielectric characteristics. These properties indicate that the new fiber should find application in the manufacture of filter cloths and other industrial fabrics, as well as in woven and knitted fabrics for household and apparel use.

The patent previously mentioned bears out the surmise made in our October, 1938, issue that Vinyon is produced from the vinyl type of synthetic resin, such as is employed in the manufacture of Vinylite plastics. According to the patent, the fibers are formed by spinning a solution or dispersion of the vinyl resin into filaments. These filaments are formed into fibers of the desired size by twisting and doubling operations as desired, and thereafter the fibers are stretched to yield products suitable for use in the customary textile operations. The stretching of the fibers is carried out while they are in their normal state, by which is meant that they are not softened by heat or the action of a solvent.

This stretching operation is said to be a vital feature in the production of the yarn, increasing the tensile strength and giving the fibers true elasticity. By means of the stretching operation, the important properties of tenacity and elongation can be varied.

PRODUCTION METHODS — Chemically, vinyl resins are polymerization products. Poly-vinyl chloride, for example, is produced by polymerizing vinyl chloride in the presence of a catalyst, and poly-vinyl acetate is produced by the polymerization of vinyl acetate, which is derived from a hydro-carbon gas. Various co-polymers of vinyl chloride and vinyl acetate can be prepared, those having about 85% to 90% by weight of vinyl chloride being especially suitable for making synthetic fibers.

The general sequence of operations in the production of Vinyon is shown in the accompanying diagram (Fig. 1). The vinyl resin in the form of a dry powder is dispersed in acetone at 50° C. to form a dope containing 23% by weight of resin. The dispersion is then filtered through a filter press, and deaerated by allowing it to stand for 48 hr. Extrusion of the filaments is carried out by the dry spinning process. That is, the resin dispersion is fed through metering pumps and a candle filter and forced through a spinneret. The extruded filaments pass down through a drying cell in which warm air is circulated to remove the solvent. At the bottom of the cell the filaments are gathered together through a guide and are then wound on a bobbin. Spinning speed is about 250 meters per minute.

After the filaments have been allowed to stand for at least 12 hr. on the take-up bobbin, they are wet twisted on a standard duplex ring twister, being given 6 turns per inch. The twisted yarn is then stretched by means of a suitable device to about 140% of its original length and wound on spools. Next the yarn is set by immersing it for 2 to 3 hours in water at 65° C. Finally the yarn is wound on cones ready for use.

Various modifications of this process are possible. For example, the filaments can be dulled by a hot-water treatment as they are wound on the take-up bobbins. Again, the yarn, after stretching, can be subjected to a flexing operation in order to produce uniform softening effects.

DELUSTERING — As is the usual practice with textile fibers, it is frequently desirable to deluster or dull the yarn. This can be accomplished by incorporating pigments, such as titanium dioxide, of small particle size in the resin dispersion, and the degree of delusterization can be controlled by variation of the particle size of the pigment and the amount used. It is preferable, however, to achieve the desired dulling of the fibers by means which do not involve the incorporation of other substances in the filaments. As stated above, this may be effectively done by treatment of the filaments with heated water at their point of formation, coupled with the additional delustering effected by the stretching operations. These treatments are simple

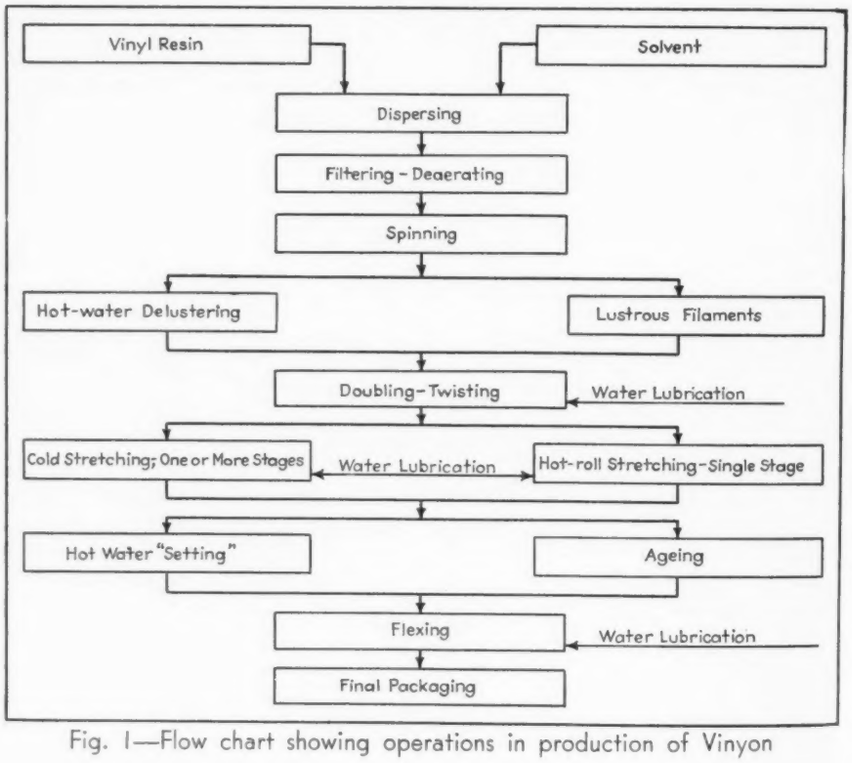


Fig. 1—Flow chart showing operations in production of Vinyon

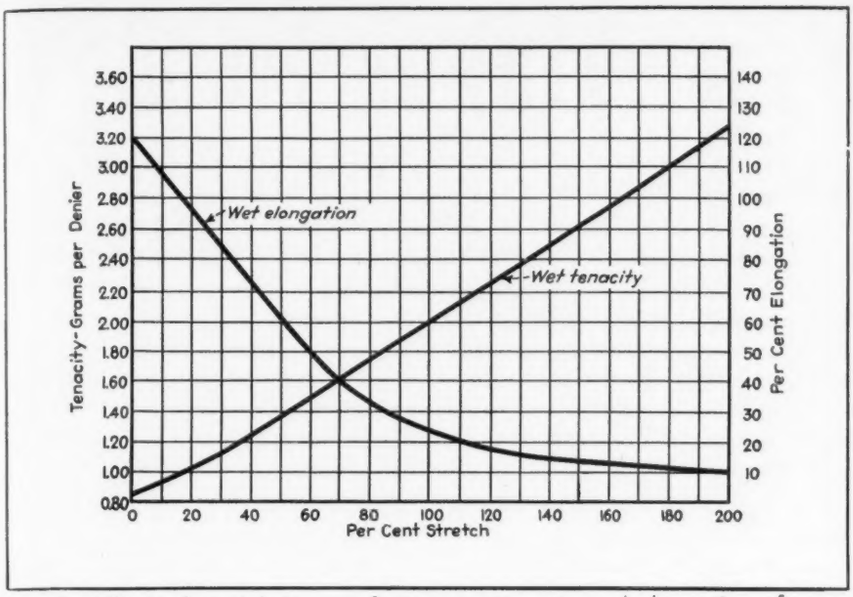


Fig. 2—Effect of stretch in manufacture on tenacity and elongation of yarn

and effective and do not detract from the softness, elasticity, and tensile strength of the yarn. The application of water heated above 50° C. to the filaments as they leave the spinning cell causes the fibers, when viewed under the microscope, to have a slightly roughened or scaly exterior. This surface modification of the fibers is highly desirable, and is a further instance of the manner in which the properties of the new fibers resemble those of natural fibers.

The filaments, either in the stretched or unstretched condition, can be cut into staple fiber of any desired length. Staple fiber prepared from unstretched filaments is said to be particularly useful as a binding agent or stiffener for use in admixture with wool and cotton. Since the Vinyon is thermoplastic, fusion or partial fusion of the vinyl resin fibers in such a mixture results in novel stiffening or binding effects. Staple fiber made from stretched filaments is said to lend high strength to mixture yarns containing it.

PROPERTIES — According to the patent, continuous-filament Vinyon has a wet tenacity of 2.75 to 3.50 grams per denier, with an elongation of 11 to 15%, depending on the process of manufacture; elasticity is about the same as that of real silk. Under prolonged exposure to highly concentrated ultra-violet light, the Vinyon demonstrates a greater resistance to deterioration, as indicated by strength reduction, than is true with certain other synthetic and natural textile fibers.

The yarn is definitely water resistant and waterproof, but surface wetting can be readily accomplished through the use of wetting agents. The yarn is thermoplastic, and its fusion temperature is somewhat lower than that of fibers formed of cellulose acetate, but the yarn will not support combustion. It is resilient and has natural crease resistance to a high degree. An outstanding characteristic is its resistance to chemical attack; it is unaffected by alkalis and mineral acids of both high and low concentration. Vinyon can be dissolved by the lower aliphatic ketones and certain halogenated hydrocarbons, and it tends to swell when in contact with diethyl ether and the lower aromatic hydrocarbons; but is unaffected by alcohols, gasoline, and other aliphatic hydrocarbons, as well as most other types of solvents. It will not support bacterial or fungus growth and is unaffected and immune to attack by bacteria and fungi. It is non-conducting to electrical charges and is an excellent insulator.

DYEING — The yarn can be dyed by incorporating dyes in the resin dispersion prior to filament extrusion, or it can be dyed, after its formation, from baths containing mixtures of solvents and non-solvents for the resin which temporarily swell the yarn. It can also be dyed by means of many types of dyes according to standard dyeing procedures which are modified slightly as to temperature and the use of dispersing agents for the dye. Some oil-soluable dyes can be applied to the yarn from hydrocarbon baths.

The patent states that the yarn lends itself readily to all ordinary textile processing and that it can be knitted, woven, braided, and plaited readily. It is said to be especially well adapted to knitting operations, and tests have shown that it is possible to obtain a much tighter stitch without thread rupture than is the case with previously known yarns. In weaving it can be used either as filling, warp, or pile. It is desirable to carry out weaving operations under conditions of high relative humidity in order to reduce the development of static electrical charges. Due to the resistance of the yarn to water, it can be woven while wet without sacrificing strength or risking thread breakage or undue stretching. Prior to weaving Vinyon should be warp sized with a hygroscopic sizing agent, which will form a pliable film on the yarn.

If the yarn after being stretched is not subjected to the stretch-setting treatment, it shows a tendency toward shrinkage which is variable in degree, according to the temperature to which it is subjected. In general, this tendency toward shrinkage is as follows:

Temperature °C	*Shrinkage Percent*
30	0.70
40	1.25
50	4.50
60	8.50
70	21.00

Where this contraction amounts to as much as 10%, a reduction in luster accompanies it. Skrinkage of the yarn also results in reduction in tenacity and an increase in elongation proportional to the extent of the stretch which is lost. After the yarn has shrunk as a result of being subjected to elevated temperatures, it no longer shows any tendency toward contraction when reheated to the same or a lower temperature. This shrinkage of the unset stretched yarn can be utilized to tighten the stitch in knitted or woven materials and thereby to prevent laddering or thread slippage.

The yarn can be produced in many filament sizes, and it has been determined that the filament denier which most conveniently lends itself to the processes of textile manufacture is around 1.0 to 1.5.

APPLICATIONS PROPOSED for the new yarn include the following: Industrial filter fabrics, fish lines, nets and seines; acid and alkali-resistant clothing; protective pipe covering; electrical insulation; shower curtains; bathing suits; waterproof clothing; fireproof awnings and curtains; hosiery; fusible shape-retaining fabrics; and, in admixture with other textile materials, mixed fabrics for obtaining cross-dyed effects and the like. Staple fibers of vinyl resin in admixture with natural materials, such as cotton or wool, are said to make possible the production of fabrics which will maintain a pressed crease or fold.

Textile Council Makes Its Bow

Cotton, rayon and silk branches take vital step toward coordination

THE FIRST major step toward a goal which many leaders in the industry have envisioned for years was taken on June 15 when the National Council of Textile Industries was formally launched at a meeting of representatives of the three organizing associations: the Cotton-Textile Institute, the National Rayon Weavers Association, and the National Federation of Textiles.

The purpose of the council is to consider matters in the textile industry involving the common interest and welfare of its members and to aid in such ways as its members may conclude are useful in the welfare of those industries and the public interest.

The following officers were elected: Chairman, Claudius T. Murchison, president of the Cotton-Textile Institute; vice-chairmen, G. H. Conze, president of the National Federation of Textiles, and C. Whitney Dall, president of the National Rayon Weavers Association; treasurer, I. L. Blunt, secretary of the National Federation of Textiles; secretary, Paul B. Halstead, secretary-treasurer of the Cotton-Textile Institute; assistant secretary, Jeanette Malzen, National Rayon Weavers Association. Each of the constituent associations has not more than seven representatives in the council.

In addition to Mr. Dall, the following represent the National Rayon Weavers Association on the council: Paul Whitin, Paul Whitin Mfg. Co.; R. E. Henry, Dunean Mills; Edwin Lord, Aberfoyle Mfg. Co.; G. E. Buxton, Androscoggin Mills and Bates Mfg. Co.; Allan Barrows, Gosnold Mills Co.; and George M. Wright, Republic Cotton Mills.

The National Federation of Textiles is represented, in addition to Miss Blunt and Mr. Conze, by M. K. Yorks, Bloomsburg Silk Mill; William G. Lord, Galey & Lord, Inc.; William Menke, Menke Kaufman & Co.; and Edward G. Addiss.

In addition to Dr. Murchison, the following represent the Cotton-Textile Institute on the council: K. P. Lewis, Erwin Cotton Mills, and president of the American Cotton Manufacturers Association; Russell T. Fisher, president of the National Association of Cotton Manufacturers; Harry Bailey, Wellington Sears Co.; C. F. Broughton, Wamsutta Mills; Fuller E. Callaway, Jr., Callaway Mills; and Robert R. West, Riverside & Dan River Cotton Mills.

The articles of the council provide that no action shall be taken by or in the name of the council except with the assent of members through their authorized representatives.

The articles also provide that such other trade associations whose membership is engaged in the textile industries may from time to time be elected to membership by unanimous vote of the then members.

Because of the tendency of textile mills to diversify in the use of different fibers, Dr. Murchison expressed gratification over the formation of an association that would provide a meeting place for consideration of problems dealing with textiles in general.

OFFICERS OF THE COUNCIL

December, 1933 — Vol. 83, No. 13

Textile World

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Editor: DOUGLAS G. WOOLF

For a Textile Institute

WE recommend to the textile industry the creation of an American Textile Institute, representative of all branches and consolidating the medley of trade associations which are now serving this field.

In making this suggestion, we are not implying even the most remote or indirect criticism of those [illegible] On the contrary, we believe they the impelling reason why, for example, it was found necessary for the cotton-textile code gradually to adopt more and more step-children.

Even where actual combination does not exist, the increasingly intimate competitive interrelationship among fibers and processes makes it dangerous for a mill-man to become single-tracked, mentally.

60 (60) — *January, 1934*—Textile World

Textile Institute Suggestion

MEETS MIXED REACTION, WITH MANY FAVORING INTERMEDIATE STEP

THE suggestion of an American Textile Institute, made in these columns last month, met, as might be expected, a mixed reception in the industry. The opinions received to date divide themselves into three approximately equal classifications. One-third of the men heard from are definitely in favor of the idea; one-third are just as definitely opposed; and one-third are doubtful, but mostly in favor of an intermediate step as a compromise. In both the first and second classes there are some men who, while either favoring or opposing the idea, indicate a leaning toward such a compromise.

A thought recurring quite frequently throughout the opinions is to the effect that the plan is sound in theory but not feasible in practice. Many hold that the suggestion is premature; that the time is not ripe for such action.

The alternate plans proposed by a very considerable proportion of the men heard from were surprisingly similar in type. Roughly, they entailed the formation of a national council composed of representatives of the various existing associations, rather than the establishment of a national institute which would supersede those organizations. This council, it was held, could consider those problems common to all branches of the industry, and attempt to develop a unanimity of thought on them. Many believed that subsequently such a council would become the nucleus of a more closely knit national institute.

In adjacent columns are printed extracts from some of the comments received. These are representative of the differing shades of opinion expressed. It should be stated that a definite attempt was made by the editor to secure these reactions. The men selected for this sampling canvass were mostly those who had been or still were engaged in some type of associational effort, since it was realized that their opinions would be of practical importance in the further development of such a plan.

H. M. Ashby, vice-president, F. C. Hoyt & Sons, Albany, N. Y.; and member Wool Textile [illegible] I have no doubt that an organization

(2007) 75

Textile World—*October, 1934*

To the Editor:

EDITOR, TEXTILE WORLD:

I beg to refer you to the correspondence we had last December. I have attended many code meetings as well as meetings of representatives of trade interests in the textile industry. I would certainly beat the drum and beat it hard right now on the subject of an American Textile Institute. Every day adds more evidence to the fact that we are sadly lacking such a cooperative medium.

Would "Beat the Drum" for a "Textile Institute"

Can you imagine how much different the situation would be today in the present handling of the strike [illegible] if through the Institute the whole textile trade could face this

appreciate the fair stand that the publication has taken."

"Have just finished listening with considerable interest to your discussion of the present textile strike on the radio. I consider it an excellent resumé and agree with you in your recommendation that the mill owners would do well to fight to the end."

"I am writing to express my appreciation of the splendid editorials in connection with the recent strike. I also understand you made a fine address over the radio, which I was not so fortunate as to hear, but which I have heard very highly commended."

"Just listened to your speech over WISN, Milwaukee. If you think that [illegible] textile workers are re-

Textile World

November, 1934

Editor: DOUGLAS G. WOOLF

Eventually—Why Not Now?

LAST December, in these columns, we recommended to the textile industry the creation of an American Textile Institute, representative of all branches and consolidating the medley of trade associations which are now serving this field.

We solicited and received from a large number of leaders in the field their reactions to this idea. One-third of the men heard from were definitely in favor, one-third were just as definitely opposed, and one-third were doubtful, but mostly in favor of an intermediate step as a compromise. In both the first and second groups there were some men who, while either favoring or opposing the suggestion, inclined toward such a compromise.

The alternate plan proposed by a very considerable proportion of our correspondents was the formation of a national council composed of representatives of the various existing associations, rather than the establishment of a national institute which would supersede those organizations'

successfully—as a united front on the other side.

In the settlement of the strike, an equally serious situation arose. For example, certain branches of the industry found themselves saddled with provisions for handling the stretch-out problem, despite the fact that practically all the experimentation and study leading up to those provisions had been centered in one division alone: cotton.

In fact, there was a disposition on the part of the press and the public, throughout the strike and its settlement, to set up the Cotton-Textile Institute as the spokesman for the textile industry. This "honor" was unsought by that body; in fact, was undoubtedly embarrassing to it. Equally, it was not satisfactory to the other groups which naturally had no representation there.

The answer is obvious: A

60 (2390) — *December, 1934*—Textile World

Textile Council

Favored as alternative to American textile institute

THERE is definite recognition, in the textile industry, of the need for a national council, composed of representatives of the various existing associations, which could consider those problems common to all branches of the industry. This was manifest in the reactions received by the editor of TEXTILE WORLD to the editorial in last month's issue. On the other hand, majority opinion very definitely opposes the actual merger of the associations at this time.

Approximately 60% of the men heard from indorse the idea of a council. Of these, some favor the formation of what we have described as an American textile institute, but the majority believe either that the time is not ripe for this more ambitious step, or that a council is as far as the industry should go at any time. Thirty per cent of our correspondents are opposed to both the institute and the council, while the remaining 10% are neutral—mostly from Missouri. There is very definitely a stronger feeling for the council idea than there was when we sounded out opinion on this subject about a year ago.

Below are reprinted extracts from a few representative letters on both sides of the fence, offered as a sample of the reaction received.

"I regret that I am still of the same opinion after a year's experience—that a textile institute covering the entire textile trade would not serve the purpose that a smaller association serves in furthering the individual manu[illegible]

the coordination of textile interests."—**H. E. Coffin**, chairman, Southeastern Cottons, Inc.

"My understandi[illegible]

port to make it an effective instrument toward the impro[illegible]

Textile World

NOVEMBER, 1938

DOUGLAS G. WOOLF, *Editor*

Eventually—and Maybe Soon

OUR suggestion for closer coordination of the trade associations in the textile industry will have its fifth anniversary this December. It has just received a most welcome birthday gift from Dr. C. T. Murchison, president of the Cotton-Textile Institute, in the form of public and forceful espousal of the general type of correlation we have been urging. We feel so strongly about the importance of this particular move, that we must admit to a little pride (whether pardonable or not) in the fact that sentiment in favor of it is crystallizing in the industry.

It is therefore timely to summarize the thinking back of the idea.

ning into exactly that same type of problem. That is why Dr. Murchison brings up the question at this time. Cotton, rayon and silk are bound together into a field of common interest, he points out, "and Governmental recognition of this unity was made when Administrator Andrews decided to bring cotton, rayon and silk within the jurisdiction of Industry Committee No. 1."

"It next becomes inevitable and essential," flatly declares Dr. Murchison, "that the central trade associations of these three groups closely correlate their activities in all matters having to do with Government regulatory policy. . . . One cannot escape the inference that the time will eventually come when the members of the Cotton-Textile In-

Textile World, *January*, 1939 . . . . . A PUBLIC RELATIONS ARTICLE 31

Council Idea Grows

Response reveals realization of need for textile coordination

SENTIMENT in the textile industry, and in the allied fields, indicates a growing support for the idea of closer coordination among the various textile associations, as advocated editorially by TEXTILE WORLD. Specifically, there is endorsement of the proposal for a Textile Council, on which would be representatives of all the major organizations.

Recent conversations with leaders in all sections of the industry indicate to us that the time may be ripe for the initiation of such a move. The step taken toward coordinating the cotton, rayon and silk divisions has spurred interest in this trend.

Below are a few com[illegible]

meritorious thing that can add to the happiness of the world. So the idea that one fiber necessarily competes with the other has no place in a structure where styling and promotion have so much to do with the advancement of the product.

Healthy competition and emulation are very good things but need not be the stumbling block upon which there should fall the thought of organized collaboration between the responsible factors in the textile world.

PAOLINO GERLI
E. Gerli & Co., Inc.

Must Be Closer Coordination

considered as a whole and treated as a whole in its broadest classification. It is either desirable to have it, or if it is better to raise potatoes and wheat, eliminate it as a whole rather than to try out the medieval system of killing a person by lopping off a thumb and finger and so continue on to the final end. The industry correlated as a whole can stand the fight much better—fighting as a whole for its own protection—rather than to be lopped off item by item.

E. KENT SWIFT,
President, Whitin Machine Works

Deserves A[illegible]

Textile World, *February*, 1939

26

THE EDITOR SAYS

A Great Step Toward Sanity

ONE of the most important steps in the history of the textile industry was taken Jan. 26 when the National Council of Textile Industries was tentatively formed, to serve as a coordinating group among the cotton, silk and rayon groups, and eventually, it is hoped, among all the branches of the industry. When approved by the Cotton-Textile Institute, and the National Federation of Textiles, and the National Rayon Weavers Association, this Council will deal with matters of common interest, involving policy. Its set-up is such as to permit the other textile associations to join.

The background of this specific movement is known to our readers. It grew out of the close association of the cotton, rayon and silk groups in the work of the Textile Committee under the Wage-Hour Administration. Recognizing the need for community of policy, Dr. Claudius T. [illegible] in establish-

problems of production policies, merchandising, promotion, research, statistics, industrial relations, etc., all of which offer a common ground for constructive effort, and none of which can be solved, adequately, by any branch alone.

The proper development of this Council will mean more to the well-being of textile employers and employees than any other step we can recall. We hope eventually it may develop into one trade association—what might be termed an American Textile Institute, as we have indicated previously—but for the present, its function probably should be limited to coordination rather than extended to amalgamation.

Congratulations to the three groups involved! We earnestly urge the cooperation of the other groups in the industry as that the Council may rapidly take its place as the spokesman for a great basic industry.

Wage-Hour Group Doing Good Job

mittee—can tell you exactly what is going to be done on this, that, or any other phase of the problem. However, one reason why this advice might be questioned is the fact that not even the committee itself knows yet what the answers are going to be.

One of the rumors has been to the effect that a complicated series of rates for all the different jobs in a mill would be established by the committee, and that this would be done separately for each branch of the industry. Unless we have mis-judged the caliber of the members of the committee, we are confident they will hesitate long before establishing such occupational minima. Granted that differentials between skilled and unskilled labor may be necessary, there certainly is no reason for, or possibility of enforcement of, detailed classifications. In fact the act itself in this way. Its purpose is to set a floor below wages and a ceiling above hours, in order to prevent collapse of labor standards such as occurred in the depths of the depression. The simpler form such protection takes, the less danger there is of the growth of a bureaucratic octopus, and the [illegible] there is of the per-

EVENTUALLY—AND NOW: Over five years ago TEXTILE WORLD started a campaign for coordination of association activities in the industry. It first urged the formation of an American Textile Institute, representing a merger of the various organizations, but, after carefully testing sentiment in the field, pushed the compromise idea of a council composed of representatives of the different bodies. The first definite step in that direction has now been taken. The National Council of Textile Industries will form a meeting place for three divisions of the industry. We hope eventually it will be extended to include all. "Eventually—Why not Now?" has been our battle-cry. The "Now" has started to arrive.—*Editor.*

The Man and the Machine

Human relations is major theme of meeting of operating executives

THE RELATIONSHIP of man to the machine, of man to those with whom he comes into contact, and of man to himself and his own ideals formed the major theme at the 31st annual convention of the Southern Textile Association at Myrtle Beach, S. C., June 15 to 17. L. J. Rushworth, president, presided over the gathering of some 300 members and guests.

In his address, Mr. Rushworth spoke on "Freedom and Machines." "The aim of the industry," he said, "is the creation of human beings better than any present type." The use of machinery is freeing labor from slavery, he added.

"You are not lacking in personal courage if you have been able to keep your feet on the ground through this present era of conflict and change," he said. "You will at all times stress one of the most important functions of management, safety: physical safety and elimination of occupational hazards, personal safety and the elimination of 'ism' hazards, plant and management safety and elimination of modern hazards, and mental safety. Our industry is referred to as being indisposed. It would be better if we were more conscious of the fact that it is indispensable. Where would civilization be if our industry expired. Raiment is no small factor. From swaddling clothes to winding sheet, we are dependent on our industry, more than all others combined, for our daily existence."

E. R. Schwarz, professor of textile technology, Massachusetts Institute of Technology, discussed the fundamentals of the new textile technology. "No testing machine," said Dr. Schwarz, "and no manual or handbook will think for the technologist nor will they absolve him from the necessity to exercise his brain." Many of the problems of testing were described and advances in the science were cited.

P. B. Parks, Jr., plant manager, Erwin Cotton Mills No. 5, newly elected president of S.T.A.

H. H. Willis, dean of textiles, Clemson (S. C.) College, spoke on the practical problems of management. He discussed the importance of small things such as tact in suggesting changes, patience with explanations, fairness and promptness in dealing with grievances, giving of correct information, personal touch with help, and study of work loads.

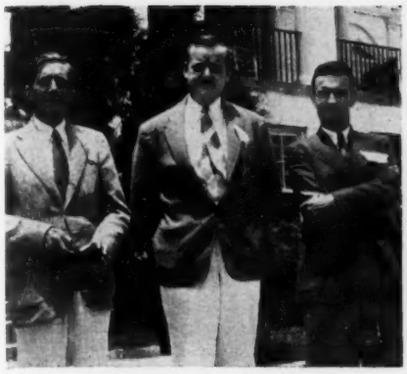
Another guest speaker was Sylvester Green, president, Coker College, Hartsville, S. C., who cast his remarks on a high plane, admitting that his hobby was human relations. "One source of happiness," said Dr. Green, "is the ability to adjust one's life to those with whom one comes in contact. This should include our own intimate associates in the home, those in the surrounding social sphere, the community, and especially in the sphere of commerce and labor.

"In the sphere of business," he went on, "you must be sure to accord to every man, and every man's work the proper dignity. In getting along with people an important factor is the ability to analyze the peculiarities of a peculiar individual."

Dameron H. Williams, Gastonia, N. C., discussed the problems of the cotton broker, the grader, and the classer, choosing as his title "King Cotton in the Dog House." His serious talk was interspersed with many references and anecdotes of a lighter vein, appreciated by his audience.

(Left to right) Marshall Dilling, A. M. Smyre Mfg. Co., Gastonia, N. C.; Robt. I. Dalton, Whitin Machine Works, Charlotte, N. C.; Geo. Snow, Atlanta Brush Co., Atlanta, Ga.; A. P. Ritchie, Dixon Mills, Inc., Gastonia, N. C.; W. W. Watt, Jr., Abington Textile Machinery Co., Charlotte, N. C.; E. R. Schwarz, M. I. T., Cambridge, Mass.

Final game in set-back tournament: Seated (left to right)—Gill Spratt, Charlotte (N. C.) Mfg. Co.; Dick Osteen, Walker Mfg. Co., Greenville, S. C.; M. T. Poovey, Supt., Hannah Pickett #2, Rockingham, N. C.; W. W. Harris, Entwistle Mill # 1, Rockingham, N. C., Standing—J. T. Phillips, Buck Creek Cotton Mill, Siluria, Ala.; C. B. Thomason, Ashworth Bros., Charlotte, N. C.; Frank Osteen, Acme Loom. Harness & Reed Co., Greenville, S. C.; W. P. Cargill, General Supt., Pee Dee Mfg. Co., Rockingham, N. C.; B. Ellis Royal, "Textile Bulletin", Charlotte, N. C.; C. W. Cain, Steel Heddle Mfg. Co., Greensboro, N. C.; Geo. Snow, Atlanta Brush Co., Atlanta, Ga.



(Left to right) Otto Pratt, National Ring Traveler, Co., Union Mills, N. C.; Ward Bushee, American Yarn & Processing Co., Mt. Holly, N. C.; Bill Johnstone, National Ring Traveler, Co., Gastonia, N. C.

(Left to right) R. I. Dalton, Whitin Machine Works, Charlotte, N. C.; Harvey Rogers, Parks-Cramer Co., Charlotte; Walter B. Putnam, Carlton Yarn Mills, Cherryville, N. C.; Ollie Culpepper, Parks-Cramer Co.

The local division of the association was host at a dinner in honor of the association members and officers Thursday evening, June 15, presided over by Wm. H. Randolph, Jr., as toastmaster. A floor show climaxed this feature of the program. The following evening the regular banquet was held and at that time prizes were awarded to the successful contestants in the various sports provided for the guests.

Set-back tournament was won by Gill Spratt, Charlotte, and M. T. Poovey, Rockingham; horse-shoe pitching contest, by L. F. Baker, Hermitage Cotton Mill, Camden, S. C.; ladies' bridge prizes went to Mrs. M. T. Poovey, high, and Mrs. F. D. Gibson, consolation.

Golf prizes in the mill men's division were won by Henry Wood, Westminster, S. C., low gross; W. H. Miley, Jr., Erwin, N. C., 2nd low gross; Gordon Cobb, Charlotte, low net; P. B. Parks, Jr., Erwin, N. C., 2nd low net; and H. H. Willis, Clemson, S. C., consolation.

In the associate division, Ed. Reid, Charlotte, won the low gross; Webb Durham, Charlotte, 2nd low gross. Fred Alexander and H. P. Worth, both of Greenville, S. C., won 1st and 2nd low net, respectively, and John Reed, of Charlotte, was awarded the consolation.

At the final session held Saturday morning, June 17, the association voted to authorize the officers to incorporate the association as an eleemosynary organization under the laws of the State of North Carolina. Officers for the coming year were elected as follows: P. B. Parks, Jr., president; Frank Lockman, vice-president; J. O. Thomas, chairman of board of governors; Marshall Dilling, executive secretary; Joe Lyons, T. C. Pegram, R. P. Stutts and W. E. Hammond were elected to the board of governors for three-year terms; J. Z. Lancaster, two; Virgil E. McDowell, one.

Yarn Peddlers Outing

ROBERT F. THAYER of the American Viscose Corp., was elected president of the Rayon Yarn Peddlers of New England at the annual meeting and outing held at the New Bedford Country Club on June 10. Robert A. O'Blenis of the Dupont organization was made vice-president, and Harrison A. Biggi of North American Rayon, secretary-treasurer. About 35 members and guests enjoyed the week-end outing which included a golf tournament and a cruise off Martha's Vineyard Island on the vessel "Vamoose." Graeme G. Whytlaw of American Viscose was chairman.

(Left to right) 1st row: J. C. Scott; G. I. Rounds; A. Ruth; H. Joslyn; P. B. Brown; W. Kinniburgh. 2nd row: A. S. DeMarteau; G. G. Whytlaw; H. Buckley; R. F. Thayer; R. W. Green; D. H. Gillingham; R. O'Blenis; J. Varney; C. B. Burns; R. G. Potter. Standing: S. Delano; W. F. Barker; H. G. Rounsville; R. L. Tector; E. Berriman; H. Kernan, Jr.; E. Litchfield; S. B. Hunt; A. C. White; R. Kinniburgh; C. L. Hayden; W. Mansfield; S. E. Williams; W. Turner; E. D. Kay; A. C. Gillespie; G. A. Paine; L. R. Buckner; E. E. Connor; C. J. Mills; H. F. Wilcox; H. S. Biggi.

Finishers Celebrate

Silver anniversary of association with dinner meeting and golf tournament

THE PART PLAYED in the finishing industry by the National Association of Finishers of Textile Fabrics was stressed by several of the speakers at the silver anniversary meeting, held at the Seaview Golf Club, Absecon, N. J., June 16 and 17. Other features of the occasion were an address on "Democracy in Industry," by M. C. D. Crawford, of Fairchild Publications; and a golf tournament.

At the dinner meeting on Friday evening, John W. Manley, of Sayles Finishing Plants, first vice-president of the association, acted as toastmaster. The first speaker, Joseph K. Milliken, of Mount Hope Finishing Co., outlined the events which led to the formation of the association and described some of its early activities. These remarks supplemented a historical survey by Mr. Milliken and Miss Alice C. Moore, secretary of the association, which appeared in the souvenir program issued in conjunction with the meeting.

Mr. Milliken stated that in 1913, he was discussing with William W. Crapo, of New Bedford, Mass., the competitive problem of the finishing industry and the difficulty of making a profit. This conversation brought about a meeting between Mr. Milliken and Arthur J. Eddy, an attorney and author of the book "The New Competition." Mr. Milliken was deeply impressed with this book and had copies of it distributed among the men who were then the leaders in the industry. As a result, on June 9, 1914, Mr. Eddy was engaged as counsel of the association, and the same month Harry E. Danner was elected secretary. Under Mr. Eddy's guidance there was operated through the association an open-price reporting plan. This plan was in operation intermittently until about five years ago.

According to the report by Mr. Milliken and Miss Moore, much of the work of the association has been carried on by committees. Thus the committee on uniform quotation form submitted its first recommended form to members on Aug. 10, 1920. The committee on extras was appointed in October, 1921. One of the early actions of the association was the appointment of a cost committee. The association issued its first cost manual about twenty years ago and subsequently has kept it revised as conditions demanded.

JOHN W. MANLEY, who presided at silver-anniversary dinner, now first vice-president of association.

The late JOHN BANCROFT, who served as first president of finishers' association, 1914-1915.

The first official report of color classification was issued to members by the association in August, 1922. This service has been in continually increasing use ever since, to the extent that color classifications now made average approximately 10,000 per year.

In 1920 there was set up an arrangement between the converters' and finishers' associations providing for the amicable settlement of disputes by arbitration. This arrangement continued in effect until 1933, when it was decided by both associations to support the General Arbitration Council of the Textile Industry.

Collection of statistics showing the volume of yardage finished was started by the association some twenty years ago. The reports issued have obtained wide recognition as containing the authentic information necessary for a true picture of conditions existing among competitive finishing plants. Reports of credit information issued every month give a composite picture of conditions and keep the credit departments of finishing plants supplied with up-to-date essential information. Wage surveys made by the association give the wage rates paid by practically all competitive finishing plants.

With the passage of the National Industrial Recovery Act, the association was faced with the problem of working out a reasonable basis on which the industry could function under the Code. Under the guidance of Albert L. Scott, who was elected president of the association on May 26, 1933, the association provided for the finishing industry headquarters for information as to what should be done under the code.

The Federal Trade Commission, on June 30, 1938, promulgated Trade Practice Rules for the Shrinkage of Woven Cotton Yard Goods. The association immediately interpreted these rules to finishers, called meetings for the discussion of mutual problems, conferred with the Textile Fabrics Association and others, with the result that the procedure of both associations was worked out along similar lines.

Shortly after the enactment of the Fair Labor Standards Act, effective Oct. 24, 1938, the textile industry was again selected as the first industry to receive individual attention of the administrator in considering a minimum wage rate for the industry.

In this case again the association has done everything possible up to this time properly to present the facts to the administrator through Industry Committee No. 1.

The association at present is devoting earnest attention to other problems—such as, particularly, the matter of standards for fastness of color. These activities are now in the preliminary stage, but it can be anticipated that in due course well-established practices growing out of recommendations resulting from these studies will be added to the list of accomplishments.

Presentation of Mr. Crawford's address was preceded by brief remarks on association activities by William J. Mathews, counsel and chairman of the executive committee; Miss Moore; and Harry Riemer, of *Daily News Record*.

Prize winners at the golf tournament were Arthur G. Poor, of Standard Bleachery who had the low gross score; I. Harlow of Bellman Brook Bleachery, who had the low net in Class A; and J. F. McCarty, of Cold Springs Bleachery, and Robert O'Hara, of Joseph Bancroft & Sons Co., who tied for the low net in Class B.

Textile News Shots

Focal point of Cotton Carnival Week at Gastonia was the crowning of the King and Queen of Cotton by Governor Clyde Hoey of North Carolina, on June 14. The Queen was Miss Jessamine Boyce, daughter of Erskine Boyce, inventor of the Boyce weavers' knotter and the process under which Boysell products are manufactured. The King was Caldwell Ragan, president of Ragan Spinning Co. and son of a pioneer manufacturer of Gaston county. Miss Boyce wore a gown of white shadow-print organdy, with shirred bodice, large puff sleeves and a flowing skirt measuring over 35 yd. around the bottom. Her court train was of royal blue cotton velvet, lined with white sateen and trimmed with genuine "southern ermine." Mr. Ragan wore an all-white cotton tuxedo and a court train of fabric matching that of the Queen.

All-cotton, out-of-doors, Fashion Show—the first in the Court of Peace at the New York World's Fair—was a feature of New York's observance of National Cotton Week. The presentation, under the direction of Miss Catherine Cleveland of the Cotton-Textile Institute, included more than 50 high-fashion cottons from exclusive New York shops. Picture shows six typical models.

(Left) Mlle. Eva Curie wears a two-piece American adaptation of a Molyneux suit, as a souvenir of the New York World's Fair. The fabric, with trylon and perisphere motif woven in Eastman acetate rayon, is on display in the Kodak Building. *(Left Center)* A new line of rain coats featuring Zelan-treated Sanforized-shrunk cotton gabardine and poplin, offered by Lamm Bros., Baltimore. *(Right Center)* First annual cotton festival at Kannapolis featured the crowning of Miss Claudine Barber as Queen of Cotton. She is receiving from J. Paul Lucas, of Duke Power Co., a miniature bale of cotton and cash award. *(Right)* A cotton fashion show at New Orleans during National Cotton Week, drew 12,000 persons to the New Orleans Auditorium. Above is the Cotton Queen presented at this show. Garner H. Tullis, president of New Orleans Cotton Exchange headed committee in charge

Experimental Slasher

For testing size formulas and conditions is economical and reliable in results

By WALTER T. SCHREIBER and OMAR C. MOORE

A SMALL SLASHER can be used advantageously by textile mills for determining the characteristics of starches and softeners used in warp sizing, and the effect of operating conditions upon the size mixture. Also, it should be useful to manufacturers and distributors of starches and softeners. With the aid of such a slasher it is possible to compare the results obtainable with any particular product under any set of warp-sizing operating conditions and to accomplish this in a short time at a minimum cost. Small-scale apparatus will give sufficient data so that either large-scale work will be unnecessary, or the number of large-scale trials required to obtain the desired information will be reduced.

The slasher described in this article (Fig. 1) was developed for, and used in cooperative work with, several textile mills to establish the value of sweet potato starch as a cotton warp sizing agent. It was constructed as simply as possible from materials available in and about the laboratory.

The warp for this slasher consists of three ends of yarn drawn from bobbins. After passing under tension disks, the ends pass through a starch immersion bath and then between a drive roll and squeeze roll. The drive roll is driven by a gear attached to the roll shaft, which in turn is driven, through a train of reducing gears, by an electric motor. From the rolls, the ends pass over a traverse-motion device, which spaces them uniformly on the reel. The traverse motion and the reel are driven by a belt from the motor-driven reducer.

It will be noticed that a steam chest, heated by a gas burner, makes up the lower part of the starch vat. Steam from this source is used to heat both the starch vat and the driving cylinder during slashing. Steam can be passed through the hollow driving cylinder. Pressure on the squeeze roll is regulated by weights, placed on the pans which rest on the bearings of the squeeze roll.

A 1-gal. metal ice cream container and cover, fitted with a motor-driven paddle agitator, externally heated in an oil bath, is used to cook the starch mixtures. Sized yarns are dried on the reel in an ordinary hot-air dryer.

Design of the slasher, with two possible exceptions, resembles that of the commercial cotton slasher commonly used in this country. The exceptions are that sized yarns are dried in hot air rather than over steam-heated cylinders, and that the starch mixture in the kettle is heated externally rather than directly with live steam.

Since dry cans complicate the operation and at best are expensive, an air dryer is used. It is the authors' contention that hot-air-dried and cylinder-dried yarns have, for all practical experimental purposes, the same physical properties, provided both have been dried to the same moisture content and under equivalent conditions.

The externally heated starch kettle is used because, in small-scale experimentation, such heating gives greater control and flexibility to the operation. It was assumed that a starch mixture gelatinized and cooked in a small externally heated starch kettle would be practically identical to a similar mixture cooked by live steam in a commercial starch kettle, provided the same formulas were used and the solid contents and viscosities of the finished mixtures were identical.

INDIVIDUAL SLASHERS, as well as operating conditions used in commercial practice, may vary considerably in different mills. However, it was found possible to adjust the small slasher so that a yarn of definite count sized thereon with a given starch mixture took up a percentage of starch equivalent to that taken up by a yarn of like count similarly sized on a commercial slasher. For example, yarn sized on one particular mill slasher contained an average size content of 13.7%. With a squeeze-roll weighting of 210 oz. the small slasher delivered yarn with an average of 13.6% size content. Breaking strength and elongation determinations of the yarns sized on the mill slasher and on the small slasher were not greatly different.

The authors' conclusions are that a small slasher of the type herein described is well adapted to research and experimental work in the field of warp sizing, and that it may be used independently of, or in conjunction with, a commercial slasher in determining the optimum slasher operating conditions for any given starch mixture, and the most economical and effective starch mixture for any given cotton warp.

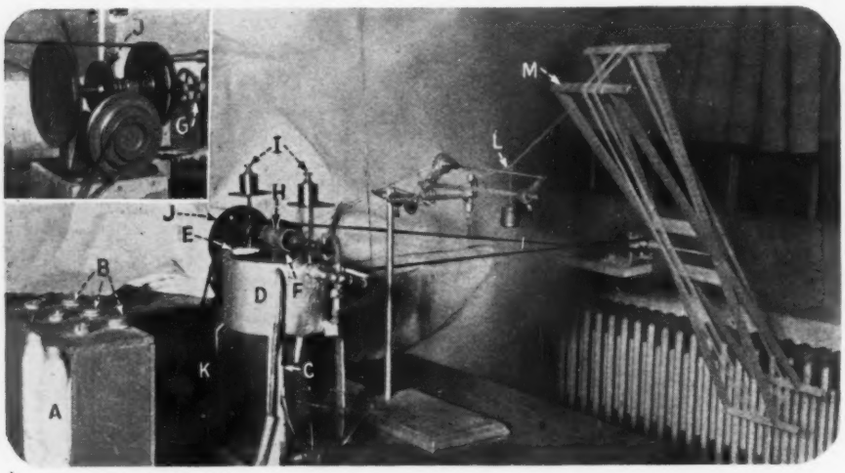


Fig. 1. Miniature experimental slasher, with speed-reducing gear train shown in insert: *A*, bobbin creel; *B*, yarn-tension disks; *C*, gas burner to heat steam chest; *D*, slasher vat and steam chest; *E*, starch immersion bath (porcelain dish with guide wires extended across the bottom to keep yarn immersed during slashing); *F*, hollow brass driving roll 1⅝ in. in diameter and 7½ in. long; *G*, driving roll gear; *H*, solid brass squeeze roll 1¼ in. in diameter and 7½ in. long covered with woolen blanket; *I*, weights to control pressure on squeeze roll, lower ends of upright rods extending from the vat and holding the weight pans ride freely in a vertical plane in the guides; *J*, speed reducer; *K*, ¼-hp. electric driving motor; *L*, device for spreading yarns uniformly over the reel; *M*, yarn reel.

This work was done by the Carbohydrate Division, Bureau of Chemistry and Soils, U. S. Department of Agriculture, in the laboratories of, and in cooperation with, Alabama Polytechnic Institute, Auburn, Ala. Mr. Schreiber is with the Carbohydrate Division, and Mr. Moore is with the Institute.

Spun-Rayon Trends

Blended and twisted yarns form basis of many interesting fabrics

By JACK JARMAK

MODERN TECHNIQUE uses spun rayon in a variety of ways. All-rayon yarns, spun in the conventional manner, have been produced in quantities. Nub, nep, and flake yarns have been widely used. Other novel treatments include yarns spun from two or more different fibers: linen has proved adaptable for combination with spun-rayon in blended yarns; cotton and spun-acetate, and woolen and worsted, have also been widely used. Twisted yarns in which an end of spun-rayon is combined with one or more ends of some other fiber or fibers, are likewise quite popular.

Recent spun-rayon fabrics divide logically into four groups. Typical cloths in two of these groups were pictured and described in the first of this series of two articles (TEXTILE WORLD, May, 1939). Group 1 comprised fabrics made partly of single yarns spun from staple rayon; Group 2 contained cloths made entirely of spun-rayon yarns. It is the purpose of this second article to accord similar treatment to the last two groups.

Group 3 consists of fabrics composed of blended yarns containing spun rayon. In these the sheen and hand of spun rayon are decidedly advantageous in obtaining unusual effects. Group 4 comprises cloths woven from twisted yarns containing a spun-rayon component. Many unusual and novel effects are obtainable by judicious selection and use of twisted yarns.

Illustrating the third general group into which spun-rayons may be classified are four samples:

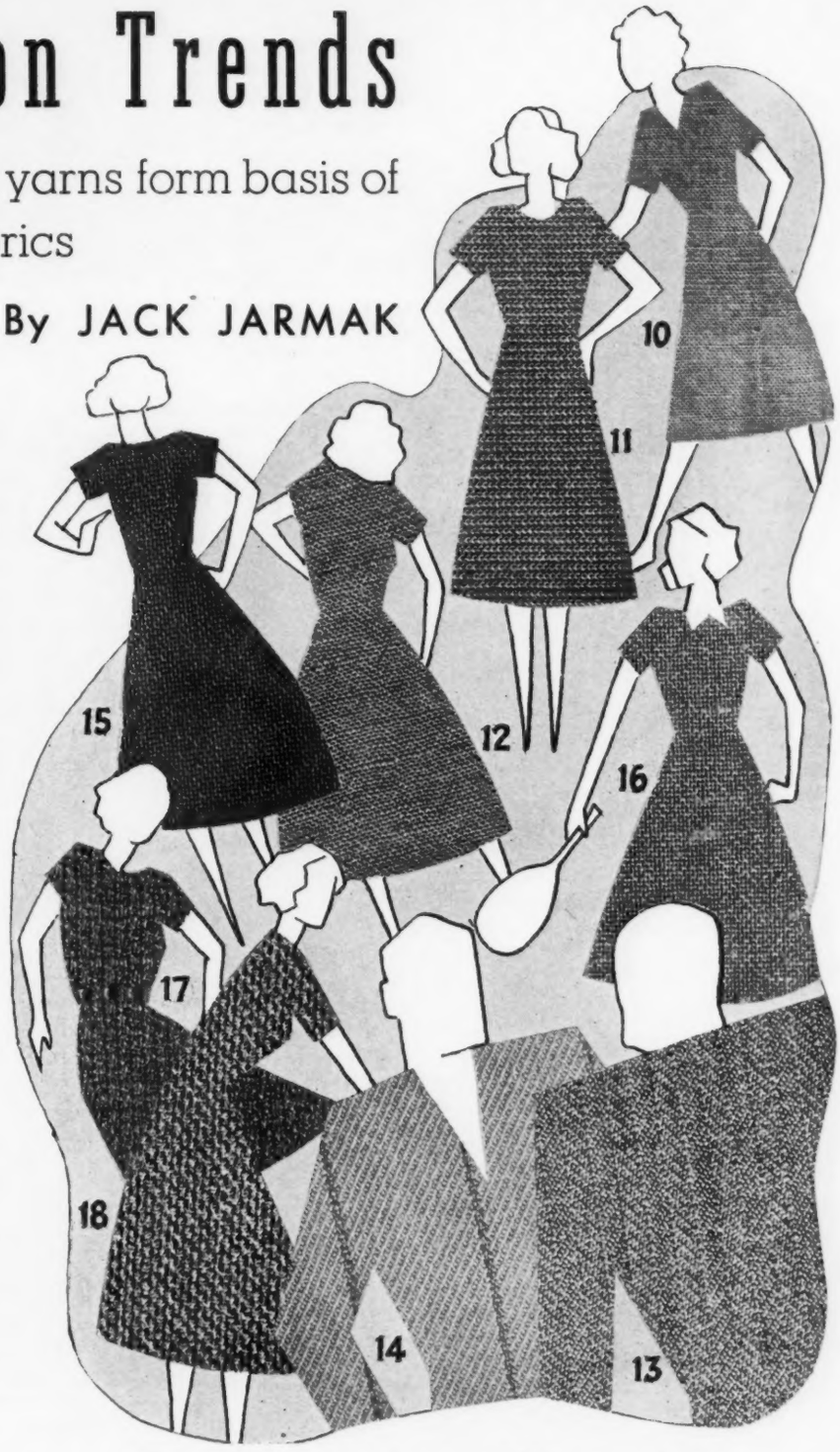
(10) 39 in.; 80x80; 30/1 warp, spun from blend of 50% cotton and 50% rayon staple; 40/1 filling, same blend.

(11) 39 in.; 88x64; 30/1 warp and filling, spun from blend of 90% rayon staple and 10% acetate staple. Fabric cross-dyed—spun rayon, blue; spun acetate, red.

(12) 41 in.; 56x52; 20/1 warp and filling, spun from blend of 30% flax and 70% rayon staple.

(13) 40 in.; 64x56; 26/2 warp, spun from a blend 10% black wool and 90% rayon staple; 26/2 spun-rayon filling.

Group 4 comprises five samples:



Examples of spring and summer fabrics woven from blended and twisted yarns containing spun rayon

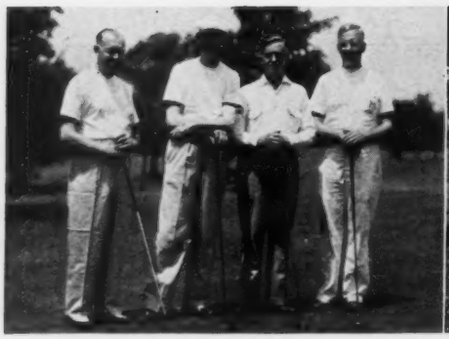
(14) 40 in.; 64x44; 26/2 rayon-staple ground warp and filling; 26/2 stripe yarn, composed of 1 end of acetate and 1 end of spun-rayon, twisted.

(15) 40 in.; 48x44; warp and filling, 1 end 36/1 cotton and 1 end 30/1 spun-rayon, twisted together.

(16) Same construction as No. 15, but with filling yarn composed of 1 end cotton and 1 end spun-rayon-slub, twisted together.

(17) 41 in.; 40x40; warp, 1 end of 30/1 cotton and 1 end of 26/1 spun-rayon, twisted together; filling, 1 end of 30/1 cotton and 1 end of 24/1 average-size spun-rayon-flake, twisted together; fabric has dobby weave.

(18) 40 in.; 48x40; warp, 1 end of 30/1 cotton and 1 end of 30/1 spun-rayon, twisted together; filling, 1 end of 30/1 cotton and 1 end of 24/1 spun-rayon, twisted; fabric has basket weave.



C. M. Patterson, Caron & Patterson; G. F. Dickson, Minneapolis Knitting Works; R. Y. Cooper, Coopers, Inc.; R. C. Thatcher, Standard-Coosa-Thatcher Co.

R. Carley, Phoenix Hosiery Co.; R. Edge, Kenosha Full-Fashioned Mills, Inc.; Irving Hessberg, Van Raalte, Inc.; R. J. Mathewson, Standard-Coosa-Thatcher Co.

Fred W. Frank, Dixie Mercerizing Co.; R. F. Clement, Wilson Bros.; H. S. Rubens, Rubens & Marble; C. D. Capron, B. Z. B. Knitting Co.

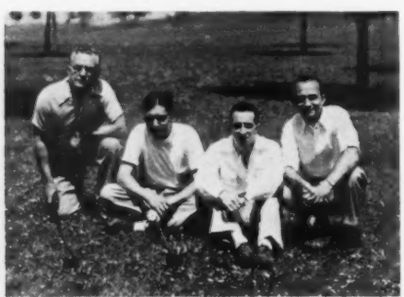
Mid-West Knitters Entertained

Guests of Chicago Yarn Men's Circle

THE 18TH ANNUAL golf tournament of the Chicago Yarn Men's Circle attracted hosiery and underwear manufacturing executives from all over the Middle West when about a hundred teed off after lunch on June 22 for 18 holes of tournament play at beautiful Barrington Hills Country Club, Barrington, Illinois. The Circle invited the past presidents and directors of the National Association of Hosiery Manufacturers, who had met in Chicago the previous day.

About 135 members and guests sat down at the dinner at which Wm. R. Rietheimer, Boger & Crawford, president of the Circle, acted as toastmaster and presented the annual cup for low net score—68—to Paul Baker, Holeproof Hosiery Co., with a leather golf bag as a permanent trophy. Robert Boehmen, Rockford Mitten & Hosiery Co., who had a 78 for low gross, won a handsome portable radio, and 14 other handsome prizes were awarded. Roy Ziock, Ziock Industries, who outdistanced all competition for the consolation prize with 151 embattled blows, received a live goose as his prize.

"Dick" Dickson upheld tradition, leading the singing of "The Yarn Men's Theme Song" and other favorites, and the guests expressed their heartiest appreciation of the royal good time given them. Ernest L. Olrich, Munsingwear, Inc., presented to each player a pull-over golf shirt with the Yarn Men's Circle monogram. Fifteen of the foursomes are shown herewith.



(Left) Nate Lewis, Kahn & Feldman, Inc.; Paul Baker, Holeproof Hosiery Co.; N. F. Lahr, Cooper, Wells & Co.; M. V. Moss, No-Mend Hosiery, Inc.

J. Kahn, Kahn & Feldman, Inc.; G. S. Lance, Coopers, Inc.; D. K. Chalmers, Holeproof Hosiery Co.; O. F. Thomas, Pennsylvania Railroad.

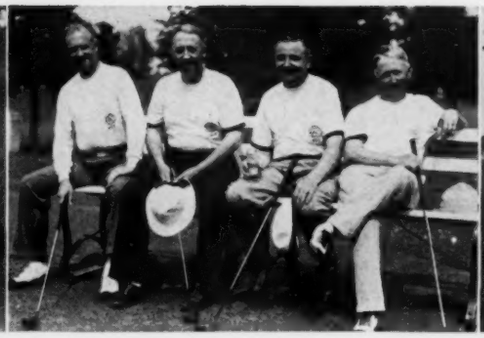
W. J. Yates, Johnston Mills Co.; N. Judson, Mock, Judson, Voehringer Co.; R. A. Smith, Wilson Bros., John Bromley, Quaker Hosiery Co.

(Right) J. P. Gallagher, B.Z.B. Knitting Co.; P. H. Thompson, Textiles, Inc.; H. A. Dales, The Adler Co.; W. E. Jenkins, Wilson Bros.

T. Robson, Wayne Knitting Mills; E. L. Dale, Aberfoyle Mfg. Co.; E. H. Kemper, Kemper Knitting Mills; Henry Pope, Jr., Bear Brand Hosiery Co.

Leo Wotan, Oscar Heineman Corp.; W. S. Parker, Burson Knitting Co.; T. E. Fitzmaurice, Kenosha Full-Fashioned Mills; H. C. Mangold, Primera Hosiery Mills.

O. G. Starke, Holeproof Hosiery Co.; B. J. Miller, Hampton Co.; W. W. Stegman, Wilson Bros.; H. W. Mittelstadt, Bradley Knitting Co.

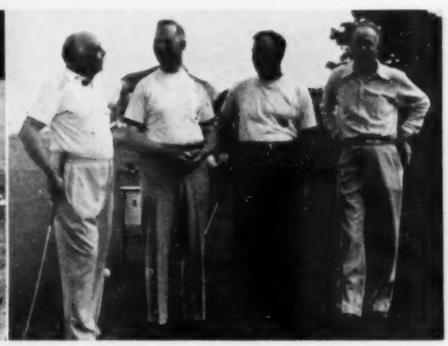


E. L. Olrich, Munsingwear, Inc.; W. H. Taylor, Newnan Cotton Mills; Frank M. Folsom, Montgomery Ward Co.; A. G. Myers, Textiles, Inc.

D. F. Byrnes, Bradley Knitting Co.; J. J. Kronenberg, Fort Wayne Hosiery Mills; J. H. Brine, Rollins Hosiery Mills, Inc.; Austin H. Carr, Durham Hosiery Mills.

Geo. M. Porges, Kaumagraph Co.; T. J. Floden, Nelson Knitting Co.; R. A. Jaeger, Phoenix Hosiery Co.; N. E. Randall, Columbia Narrow Fabric Co.

Harry H. Wolf, Coopers, Inc.; C. F. Stickler, Superior, Inc.; C. Chipman, Chas. Chipman Sons; Robt. Boehmen, Rockford Mitten & Hosiery Co.



Earl Constantine, National Association of Hosiery Manufacturers; C. F. Peffer, Cannon Mills, Inc.; F. W. Boehmen, B.Z.B. Co.; W. A. Hendrickson, Bradley Knitting Co.

Annual Golf at Chattanooga

THE CHATTANOOGA (Tenn.) Textile Group, 150 members and guests, participated in the 14th Annual Golf Tournament and Skeet Shoot on May 25 and 26 at the Chattanooga Golf and Country Club. Top honors were won by B. J. Bandy, of Dalton, Ga. The Bob Smith trophy went to Tally Johnson, of Davenport Hosiery Mill. Skeet shoot prizes went to B. C. Brown, Cliff Campbell, H. T. Harle and B. Lauderback.

(Left) H. A. Vestal, Athens, Tenn.; Roy Bradley, Greensboro, N. C.; A. J. Pfeiffer, New York; J. V. Garrett, High Point, N. C.

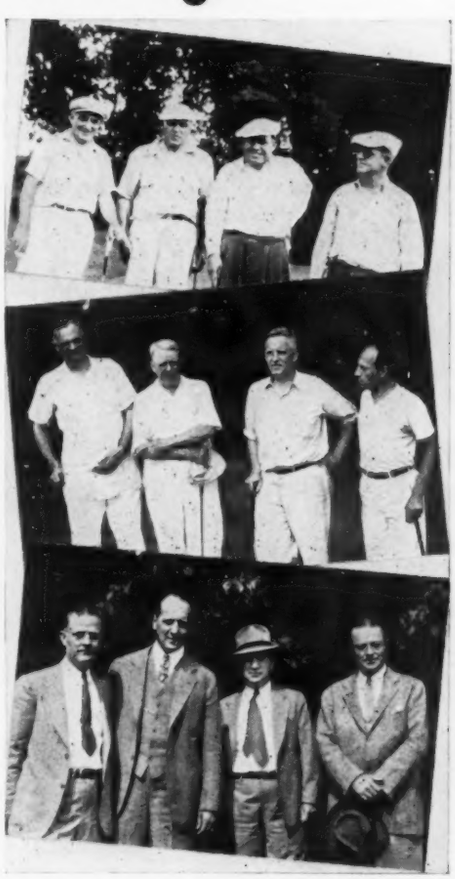
Ray Weaver, Greensboro, N. C.; J. H. McEwen, Burlington, N. C.; Reid Maynard, Burlington, N. C.; Fred Lemmond, Greensboro, N. C.

Henry Bryan, Chattanooga, Tenn.; Earl Constantine, New York; Austin H. Carr, Durham, N. C.; Joe Davenport, Chattanooga, Tenn.

(Right) C. D. Gray, Gastonia, N. C.; B. J. Bandy, Dalton, Ga.; R. G. McCamy, Dalton, Ga.; Darden Hampton, Chattanooga, Tenn.

Floyd Dooley, Johnson City, Tenn.; J. J. Cook, Charlotte, N. C.; R. C. Thatcher, Chattanooga, Tenn.; F. Cater, Chattanooga, Tenn.

J. E. McAlister, Chattanooga, Tenn.; J. C. Greer, Lenoir City, Tenn.; H. S. McInnes, New York; E. L. Dale, Chester, Pa.



Power-Factor Correction

Capacitors in southern mills prove to be effective for reducing power costs

By H. C. UHL

Asst. District Engineer, General Electric Co., Atlanta, Ga.

IMPROVEMENT OF POWER FACTOR in southern textile mills is being recognized as an increasingly important means of reducing the cost of purchased power. When rates are available which provide a reduction in power cost through a power-factor adjustment clause, they should be investigated to determine if the savings in cost of power will justify the investment for power-factor corrective equipment. This investigation should cover normal operating conditions in the mill, as well as abnormal conditions, which may at times be expected and which may affect the savings. Rate schedules providing a decrease in power bills for high power factor and an increase for low power factor are becoming more common. It is advantageous for all concerned to have a reasonably high power factor.

Improvement of the power factor benefits the mill in providing lower cost of power where favorable rates apply. It also benefits the mill in other ways in addition to that secured directly by the rate structure. If the power-factor corrective equipment is placed in the mill at such locations that the current is reduced in long feeders, the reduction in current provides reduction in cable heating, reduction in losses in the cables, and makes possible the carrying of more load on existing feeders, without overloading them. Frequently this may save the cost of additional feeders. Better voltage is secured and transformer losses are also reduced by power-factor improvement, these losses being saved for the user of power if metering is on the high side of the transformer bank.

If an industrial plant produces its own power, similar savings are possible. In addition, it releases generator capacity for future expansion and may obviate the purchase of new equipment.

EQUIPMENT AVAILABLE. Power factor can be improved in several ways: (1) by capacitors, (2) by synchronous condensers, (3) by synchronous motors (of unity or leading power factor) which carry useful load at the same time.

In the usual textile mill where it is desired to improve the power factor, the equipment is already in service and the problem is merely one of adding corrective equipment for power-factor improvement. In new mills the use of synchronous motors should be considered; but, since it is not feasible to use them in many cases, other means for power-factor improvement are used.

THE MODERN CAPACITOR should be considered where power-factor improvement only is desired. It is economical in first cost and has extremely low losses. It has no moving parts; hence maintenance is minimized. Furthermore, the capacitor can be mounted at convenient load centers outside the mill proper; or it can be mounted overhead in the mill itself if desired, thus saving valuable floor space. The following discussion of power-factor improvement in textile mills will be confined to use of capacitors.

Frequently, it is necessary to install the capacitors in one place, and the transformer station or switch-room is usually selected. Large-rack and small-rack, indoor and outdoor types, are available. In any application, flexibility in the use of the capacitors should be provided by using a number of capacitors, each with its switching equipment for adjustment of power factor from normal loads to very light loads.

An installation of eight 120-kva., small-rack, indoor capacitors in a separate room in a southern mill is shown in Fig. 1.

There are many applications where it is not necessary to concentrate the capacitors in large groups, in one place, or in a few places where there are several power-supply points. There are often advantages in connecting the capacitors in small groups to the feeder circuits throughout the mill. Dust-tight capacitors in relatively small sizes can be suspended from the ceiling or from beams, or mounted on the walls above the working area, so as not to take up floor space.

The location of capacitors on the feeders in the mill will reduce the losses and the heating in feeders. More load can be carried on existing feeders. It may sometimes make unnecessary additional feeders as the load increases.

Use of a non-flammable liquid, such as Pyranol, as the insulating medium, together with dust-tight construction, has made possible the installation of capacitors in the mill with absolute safety. Also it has made possible a much better capacitor.

Capacitors with switches can be mounted in small dust-tight rack groups,

Fig. 1. Installation of eight 120-kva., small-rack, indoor capacitors in a separate room in a southern mill

20 to 120 kva., at load centers on the feeders. Dust-tight capacitors in 5-, 10-, or 15-kva. sizes can be installed at motor locations. When installed in this manner, they will be in use only when the motor is operated, and individual switches will not be required. It is necessary, however, to readjust motor overload relays for lower current or to connect the capacitors on the line side of the overload relays to retain the proper overload protection.

An installation of a 60-kva., dust-tight, small-rack-type capacitor mounted at the feeder-circuit load center in a southern mill is illustrated in Fig. 2. An installation of two 10-kva., inclosed, dust-tight capacitor units connected to motor terminals in another southern mill is shown in Fig. 3.

When applying inclosed dust-tight capacitors at motor terminals or at motor control devices, it is necessary that

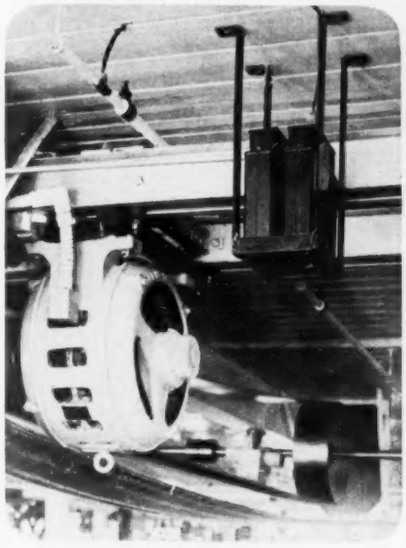


Fig. 3. Two 10-kva., inclosed, dust-tight capacitor units connected to motor terminals in a third southern mill

care be used. If the capacitors are divided into too many small units, the expense will be increased, especially that for wiring. Usually only motors of 25 hp. and larger need be considered for capacitor application; capacitors for this purpose are usually 10 kva. and 15 kva. at 460 and 575 volts, and 5 kva. and 7½ kva. at 230 volts. It is not desirable to place too much of the total required capacity on one or a few motors. Rather, it is advantageous to spread power-factor improvement over as many motors as possible, so that the overall plant power factor is not greatly affected if some motors are shut down.

If many motors on a feeder are subject to shutdowns for certain periods, if they operate intermittently, or if most of the motors on a feeder are small

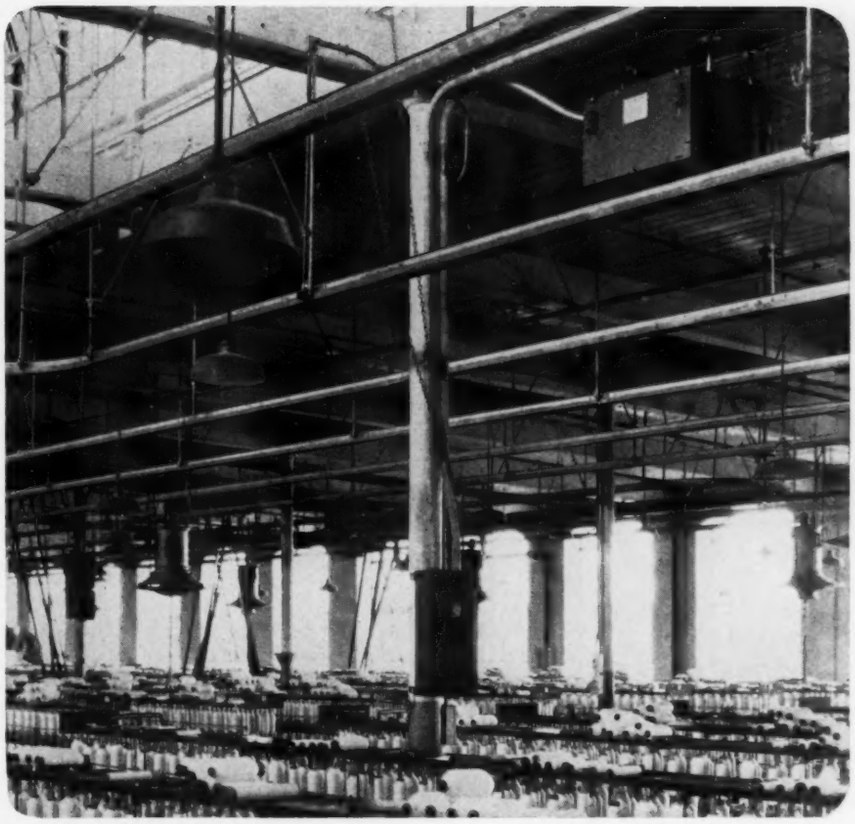


Fig. 2. A 60-kva., dust-tight, small-rack-type capacitor mounted at feeder-circuit load center in another southern mill

ones—with only a few larger motors, it is desirable, on those feeders, to provide a portion of the capacitor (and in many cases, all of the capacitor) in units that can be switched in or out, as desired, to control the power factor.

Application of capacitors is definitely tied in with the kind of power-factor adjustment clause included in the power contract. Some rate structures consider the power factor at maximum demand, or the average of two bimonthly demand periods. Others consider an average power factor for the month, which is determined from the kilowatt-hours and the reactive kilovolt-ampere hours, or kilovolt-ampere hours shown for that period. Obviously, where average power factor is the basis of billing, it is just as necessary to provide for proper power-factor improvement over week-ends, nights, and holidays, when very light loads occur, as it is to take care of the power factor under normally loaded conditions.

ANY CAPACITOR installation must be considered carefully, checking the motors in use, their arrangement on the feeders, the type of machinery driven by the motors, and the type of service, as well as the load on the feeders. It is good practice to install capacitors with sufficient adjustment to take care of load variation from normal conditions to light-load conditions. Adjustability of the capacitor is desirable, regardless of the type of installaton—whether in the swich-room in large or small racks, in groups on the feeders, or at the motor. Where average power factor is used in the billing, the adjustment of the power factor for all loads is necessary.

SAVINGS REALIZED. In the South, in cases where a power-factor adjustment clause is operative, many mills have installed capacitors for realizing savings. In all instances, careful studies have been made in advance to determine the feasibility of power-factor improvement, and how the capacitors—if feasible—should be distributed and arranged. In many applications made recently, the complete investment in capacitor equipment will be paid for completely out of net savings in from 10 to 30 months. This provides a saving that a textile mill cannot afford to lose. If the rate structure permits a saving, and if capacitors are properly installed, the reduced cost of power is ultimately reflected in the cost of manufacture. If a mill does not take advantage of the savings provided by power-factor improvement, it is really paying for power-factor improvement equipment—without having it—in increased cost of power, and, consequently, in increased cost of its product.

Knitting Single Plush

Pointers on machine adjustment for producing popular outerwear fabrics

By LESLIE MINER

SINGLE PLUSH is being used quite extensively for outerwear, particularly for women's coats and coat trimmings. This fabric can be made on almost any size of cylinder and any gage of machine. However, if the cloth is to be knit properly, it is essential that the machine be adjusted correctly.

Single plush is made on a machine of the same type as that used for balbriggan or other plain fabrics, with the addition of a plush wheel behind each feed. The cloth wheel should be set much lower, in order to cam down the fabric to the lead of the needle. This prevents the stitch wheel from picking up the heavy plush end as it runs below the stitch wheel. Many serious smashes and other troubles will be prevented by setting the clearing wheel so that it holds the heavy plush end down against the fabric.

THE CLOTH CAM should be large enough to cover the entire feed, including the plush wheel, which is set so that it loops the yarn onto the needles. The plush end is pushed down by the clearing wheel, so that it runs under the stitch wheel to the lander and over the cast-off wheel. If the cast-off wheel is set properly, it can be set much higher for this type of fabric than for finer types.

The presser should be set as close as possible to the stitch wheel, and the landing wheel set under the presser so that it is pressing at a point two or three needles from the heel of the presser. At the same time, the cloth wheel should be set close enough to the landing wheel to leave just enough clearance for the fabric to pass between it and the landing wheel.

If the plush wheel is set too high or too low on the beard of the needle or if it is not set far enough in, it may make loops.

The machine should be set up as a plain machine, and the stitch set, before the plush ends are tied on. Then tie one plush end on at a time, and make any necessary adjustments on the feed involved, before proceeding to tie on the next plush end. Continue in this manner until plush ends are tied on at all four feeds.

Smoothness of the fabric will be enhanced by causing the loops to form in a diagonal line on the face of the fabric. If necessary, this can be effected by either putting in an extra needle, or taking out one needle, so that each plush feed will knit its loop one needle ahead of the other.

Blocks and blades in the plush wheel must be of the right gage and placed in their proper positions. Care should be exercised that there are no loose blocks or blades—all should fit slightly tight. The best way to assure this is, after filling the wheel with its blocks and blades, to tap the blades gently with the wooden handle of a screwdriver until all blocks and blades are in their proper circle. This should be done with the nut screwed on the plush wheel just tight enough to hold the blocks and blades in place; after they are all lined up in their proper circle, the nut should be tightened. However, it should not be tightened enough to smash the butts of the blades.

Following are the plans of a single-plush fabric (illustrated in Fig. 1) completely worked out:

Size of cylinder	18 in.
Gage of machine	24
Feeds on machine	4
Blades in plush wheels	48
Stitch to the foot of yarn	80 needles

FEED IS PLAIN with the plush wheel blocked 3-out and 1-in. Main yarn is 20s white cotton and the plush yarn is 20s nub. All four feeds are alike.

The fabric shown in Fig. 2 is used chiefly for suits, dresses, and women's sweaters.

Plans for this fabric are outlined as follows:

Size of cylinder	35 in.
Gage of machine	18
Stitch or courses per in., stitch glass	21
Feeds on machine	4
Blades in plush wheels	48
Needles in cylinder	1296

Feed is plain with the plush wheel blocked 1-in and 2-out. The pattern of the plush wheels is the same as that of pattern wheels. The pattern of 3 must divide evenly into the 1,296 needles of the cylinder; otherwise, if there is a remainder of one needle more or one needle less, the pattern will form diagonally on the face of the fabric. Main yarn is 17/1 (9.52 typp) mohair. All four feeds are alike.

The fabric shown in Fig. 3 is made by using the same plans as those used for the fabric shown in Fig. 2, except that the plush yarn is 300-denier rayon.

Fig. 1

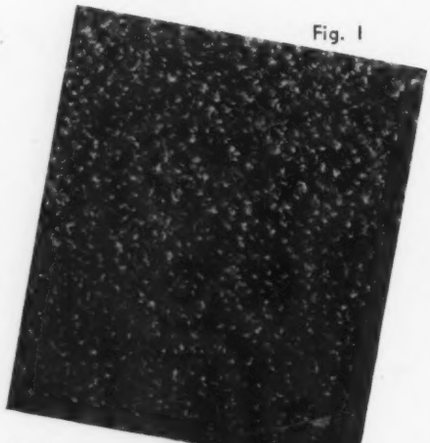


Fig. 2

Fig. 3

Fig. 1. Plain single-plush fabric made with nub yarn. Fig. 2. Single-plush fabric made with mohair yarn. Fig. 3. Single-plush fabric made with rayon yarn

TEXTILE EQUIPMENT NEWS

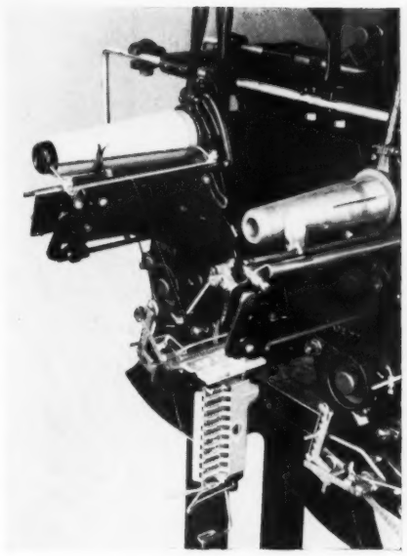
Winder Improvements

Several improvements to the winders manufactured by Universal Winding Co., Providence, R. I., were shown at the recent textile exhibitions. An outstanding feature of packages produced on No. 50 precision winders equipped with a new pineapple-cone attachment is that they have about 45° taper at the base end and only about 15° taper at the nose. The degree of taper at the nose is said to assist throwsters in producing a higher percentage of first-quality cones, and thus to reduce the amount of rewinding necessary. The degree of taper at the base, on the other hand, is said to assist knitters, since the yarn delivers freely, without plucks or under-winds on the knitting machine.

The pineapple-cone attachment is fitted to a straight traverse frame back. A bail contacts the surface of the package from end to end. This bail is so attached as to be self-aligning with the taper of the cone, and it is also adjustable for different degrees of taper. A guide is provided for guiding the yarn on to the cone; it is the tipping of this guide which makes possible the varying taper of the two ends of the cone. The yarn guide is slotted, and its movement distributes the wear in the slot over a wide area, thus adding considerably to the wear of guides.

Other improvements to the No. 50 winder include an attachment that will wind rubber from a skein to a cone with a minimum percentage of stretch; an offset yarn guide which increases the clearance between traverse frame back and yarn package, thus making possible larger packages; a precision cleaner which is said to be quickly and accurately set and to assure a setting that is always parallel; and a two-piece dog which permits adjustment of the dog in the dog segment and simplifies changing the dog when worn, as the tip-end piece can be quickly replaced.

A number of improvements to its No. 90 winder have also been announced by the company. One of these is a new balloon-type traverse wheel which is light in weight and hence easier to control in its movement along the traverse bar; the wheel has a wide rim which is rolled over sufficiently to give the necessary strength. There is also available a new auxiliary pressure guide for heavy and strong yarns, which makes it possible to put about 15% more yarn on a bobbin; a traversing bunch builder, designed for use in connection with coarse yarn



Pineapple-cone attachment (Universal)

counts, lays a wide, flat bunch and prevents the yarn from piling up to such an extent that it might fall down and become tangled. For bobbins wound with large diameter with a long traverse stroke, a new, heavy cop former has been designed. It is much longer than previous types. Another development is a new clip holder for automatic-loom bobbins, and changes have also been made in the disk-quill tension devices used extensively when winding rayon yarns. The revolving roll of former types, over which the yarn passed on its way to the winder spindle has given way to a fixed-position roll. It is stated that the new design results in better winding; and also that rolls last longer, since their positions can be changed from time to time and an unworn surface presented to the yarn.

What's New?

Every time we have asked readers what departments of TEXTILE WORLD they read most avidly, the New Machinery and Processes section got one of the top ratings. Consequently, we have continually expanded and improved this department. The latest demonstration of this preference came as a result of an intensive field survey made by the McGraw-Hill Editorial Research Department.

In response to this reader interest, we inaugurate in this issue Textile Equipment News—the section which starts on this page. Printed on special stock, this enlarged section will keep our readers informed of what's new: in machinery, in processes, in materials, in dyes and chemicals, in books, and in the personnel of those companies who supply the textile industry with all these products.

We invite comments from our readers on this special section of TEXTILE WORLD.—*Editor.*

Card Stripping Device

Canusa Corp., Arlington, N. J., has announced a static continuous card stripping device. The surface plate, which is set about ⅛ to 3/16 in. away from the card cylinder, is of a special compound that accumulates static electricity generated by air pressure created by the cylinder and by friction of the fibers. Fibers are attracted to the plate by this accumulated static electricity and prevented from sinking into the base of the card wire. Lack of contact of the stripping device with the card clothing renders any damage to the card wire impossible.

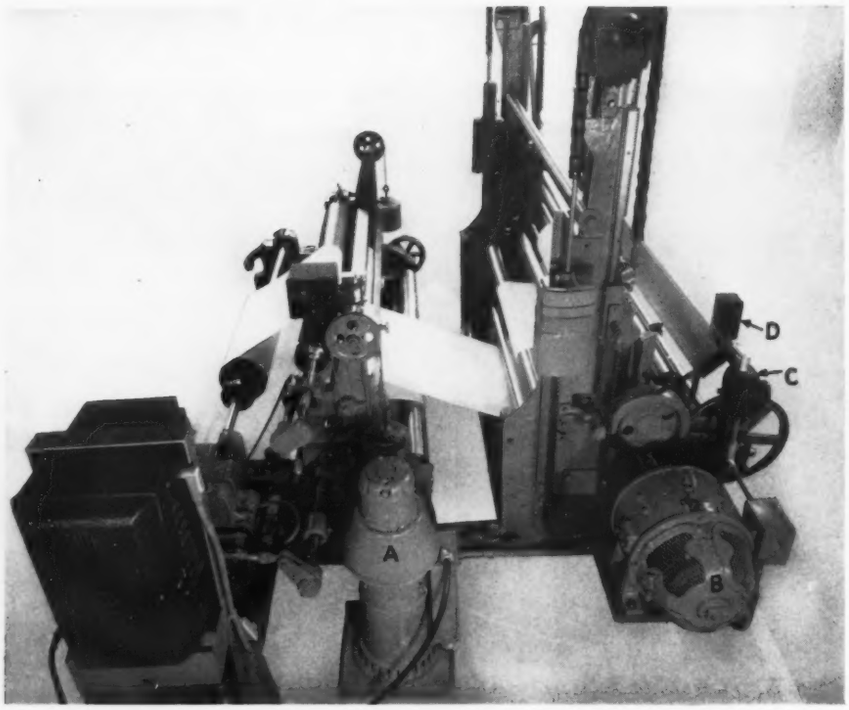
It is said that with this device it is necessary to strip a card producing about 15 lb. of sliver per hour, only once in every 12 to 24 hr. With staple fiber, it is said that an average interval of 48 to 60 hr. between strippings can be obtained. Also, by means of this device a large percentage of good fiber, which otherwise would be brushed away by stripping, is passed on to the doffer. It is asserted that cotton loss is reduced about 75%.

Drilling of four holes in the card frame and removal of a few cylinder undergrid bars is all that is necessary to permit application of the static device to the card.

High-Speed Slitting Machine

For slitting cloth or paper at high speeds, Cameron Machine Co., 61 Poplar St., Brooklyn, N. Y., has developed an improved machine, known as Camachine 10-6. The machine is designed to operate at speeds up to 1,500 ft. per min., depending on the material to be run. Two features of this machine are the provision for constant web-tension control and for automatic side-register control.

Constant web-tension control is achieved by arranging for the cloth to pass over a floating roller. The ends of



High-speed slitting machine (Cameron)

this roller are connected to levers which adjust the friction on the original roll in accordance with the pull of the web on the floating roller. When the web tends to run slack, the friction is increased, and vice versa. It is self-regulating and obviates manual adjustment of the friction on the mill roll in accordance with changes in the speed of the machine or changes in diameter of the roll being unwound. Since uniform web tension is maintained, the resulting rewound rolls are of uniform density from the core out. The photo-electric side-register control is designed to correct a dished or telescoped roll and guide it straight for slitting or rewinding within a limit of ⅛ in. at high speeds, with increasing accuracy at lower speeds.

The constant web-tension control equipment can be substituted on existing machines for the ordinary hand-operated mill roll friction. When it is desired to install side-register control equipment, it is necessary also to install the constant web-tension equipment.

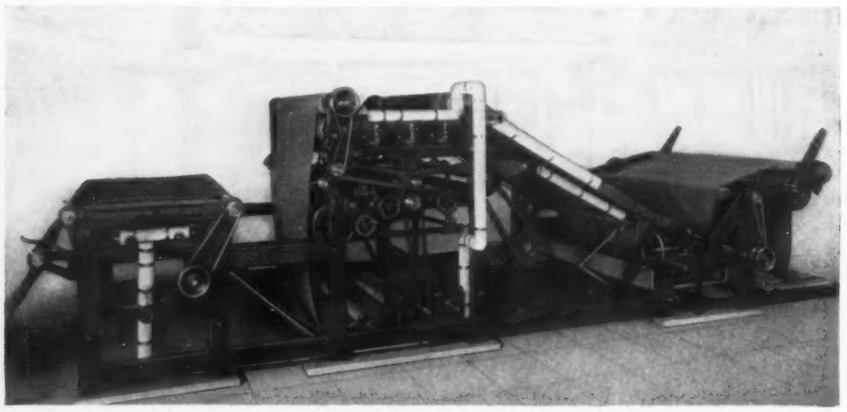
A demonstration of this machine, equipped with the new adjustable-speed drive developed by Reliance Electric & Engineering Co., was given recently at the plant of Cameron Machine Co., as noted on page 101 of our June issue.

Shrinking Machine

Shrinking and conditioning of woolen and worsted fabrics can be carried out continuously by means of a new machine introduced recently by Mawaco Machine Co., 476 Jefferson St., Brooklyn, N. Y. Known as the Mawaco Full-shrink machine, this equipment subjects the fabric to a number of open saturated steam treatments with subsequent drying on a heated drying table, followed by thorough cooling on the cooling unit. It shrinks the goods in length and width. The machine runs at speeds of 8 to 20 yd. per min., according to the type and weight of the fabric.

The machine is so constructed that the cloth while moist is never under tension, but is left free to contract in both directions. As the speed of the various rollers can be adjusted, the fabric is at all times under positive control, the shrinkage action being either intensified or lessened by turn of a wheel.

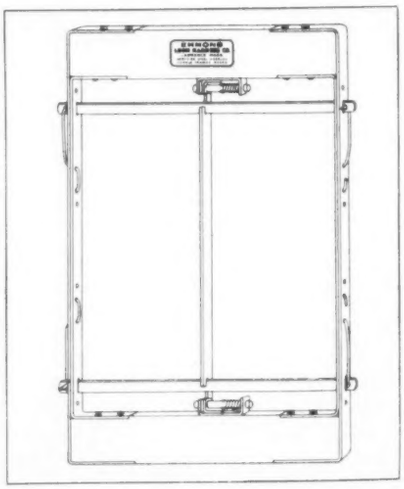
It is stated that the machine improves the appearance of the fabric; worsted fabrics, for example, which are shrunk on the machine are said to retain a pleasing luster and to gain in appearance, hand, and weight. The equipment acts as a conditioning machine by putting moisture back into the fabric.



Shrinking machine (Mawaco)

Improved Heddle Frame

A new arrangement of brace bar and connections, which permits the brace bar to be easily removed without disturbing the warp ends or heddles, is the principal feature of a new heddle frame



Heddle frame (Emmons)

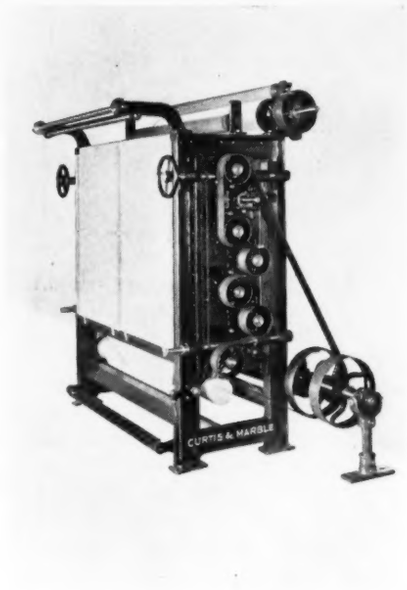
developed by Emmons Loom Harness Co., Lawrence, Mass. This new brace bar is attached to the heddle bar by means of a special locking device which includes a spring-actuated bolt. Sliding this bolt releases the brace bar, which can then be removed by a slight movement without interfering with heddles or yarn.

The arrangement is intended to provide rigidity without possibility of sway.

Vertical Brushing Machine

Quick adjustment of brushes or other cleaning rolls is an outstanding improvement in the new vertical brushing machine announced recently by Curtis & Marble Machine Co., Worcester, Mass. The convenience of this is obvious, since it makes it possible to change easily and almost instantly from a heavy to a light brushing, or vice versa.

By merely turning of a handwheel on each side of the machine, brushes and guide rods are moved either toward or away from the cloth, as is desired. Uniform adjustment is simply obtainable by referring to the pointer and scale which is attached to each handwheel.



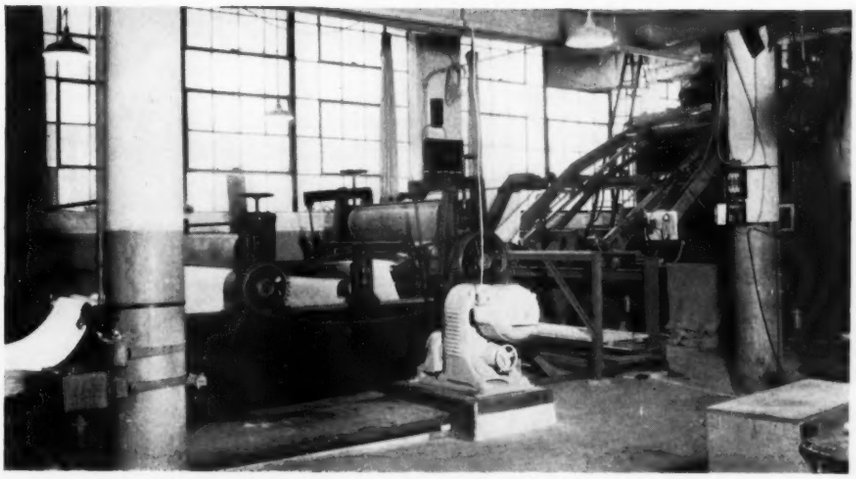
Vertical brusher (Curtis & Marble)

Cloth to be brushed runs vertically upward between the cleaning rolls. Chutes deflect dust and lint away from the fabric and into hoppers at the bottom of the machine, from which point an exhaust fan carries it away.

Carbonizing Range

Installation of a new type of carbonizing range in a well-known New England mill has been completed recently by Riggs & Lombard, Inc., Lowell, Mass. Advantages cited for the range include increased production in a relatively small space, uniform quality of product, and reduced cost of upkeep.

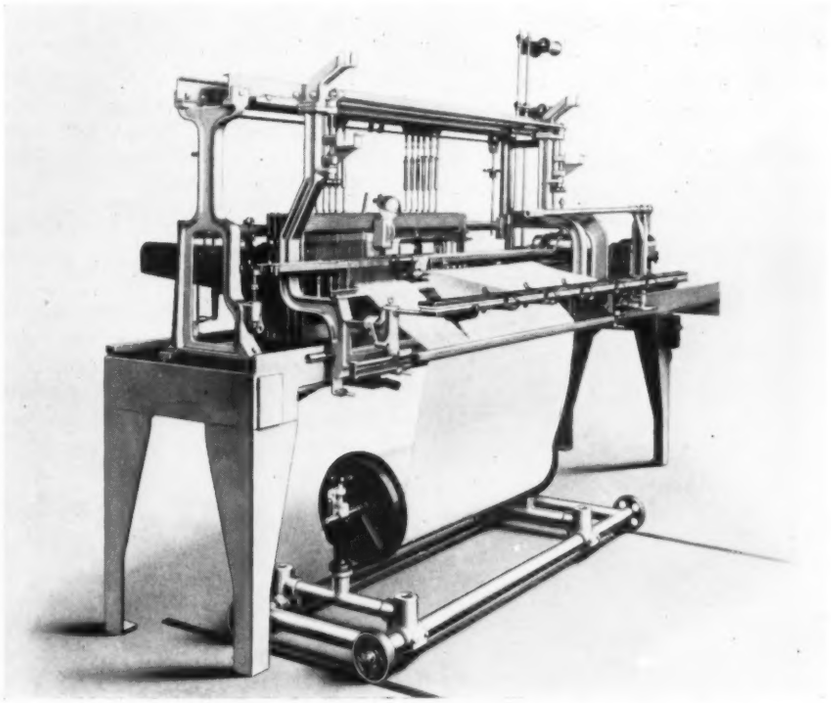
Mechanical features of the equipment are: a solid metal tank with a one-piece vulcanized-rubber lining, giving long life and eliminating leakage and repairs; extra large capacity of tank which makes it necessary to bring the solution up to strength only twice a day on ordinary work; three sets of squeeze rolls, which make for greater acid penetration, the last set of rolls being extra heavy for extraction and having no vacuum slot; all immersion rolls are rubber covered; a circulating system consisting of (1) an outside, elevated, rubber-line tank into which all acid additions are made, (2) a motor-driven lead pump, with rubber hose, which draws the liquor from the main tank, discharges it into the auxiliary tank, and returns it by gravity to the main tank; flow of acid through the main tank is counter-current and the pump capacity is sufficient to completely change the liquor every few minutes—this active circulation contributing to increased production and uniformity of product; and tenter dryer and baker of latest design.



Carbonizing range (Riggs & Lombard)

Warp Drawing-In Machine

For drawing warps on flat steel heddles, Barber-Colman Co., Rockford, Ill., introduced a drawing-in machine at the Southern Textile Exposition. The machine is designed specifically for drawing-in pattern warps through four (or fewer) banks of drop wires, six (or fewer) flat steel heddles, and one reed. Plain or leased, double-beam or double-sheet warps can be handled with equal facility, speed, and accuracy. General principles and method of operation are the same as those of other Barber-Col-



Warp drawing-in machine (Barber-Colman)

man warp drawing machines; but mechanical improvements have been introduced which make the new machine stronger and sturdier, smoother and quieter running, easier to operate, and give it a greater range of capacity.

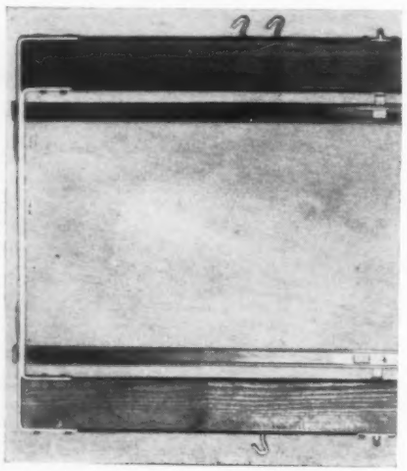
Base frame work of welded steel construction is broader than that of other models and is firmly braced to eleminate vibration and provide a rugged support. The automatic pattern selector has been redesigned, so that all of the turning worms now rotate in the same direction, making it easier for the operator to watch the progress of the work. Controls have been improved and more conveniently placed. The upper framework is heavier and stiffer than that of other models. A special feature of the leased-warp unit is the easily adjustable upper clamp-bar support which permits close control of warp tension. The conventional forward location of the clamp bar for drawing plain warp is shown in the illustration.

The heddle-turning worm, which closely resembles the type of worm used for handling drop wires, picks-off the flat wire and then faces the eye portion around at right angles, and holds it there while the needle reaches through and picks up the end to be drawn through that eye. With this worm, no spacer springs are required. The proper succession of selection from heddle to heddle is controlled by a punched sheet-metal pattern, which can be removed and another substituted whenever a different weave is to be drawn in. When less than six harnesses are to be drawn, the extra turning-worm shafts can be easily removed.

Harness Frame and Flat Steel Heddle

Draw-Tex equipment, consisting of a harness frame and a flat steel heddle to be used with Barber-Colman Co's. new drawing-in machine, has been developed by Steel Heddle Mfg. Co., 2100 West Allegheny Ave., Philadelphia.

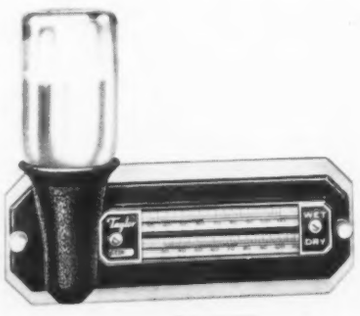
Features of the equipment are: reed, heddles, and drop wires all draw in at the same time; there are no springs to cause trouble and expense; good performance in weaving, as a result of absence of hook interference with heddles; unusually long life of heddles, due to their being made of tempered, polished steel wire; heddles require less space.



Harness frame (Steel Heddle)

Hygrometer

Complete accessibility for installation and routine servicing is the outstanding feature of a new wet-and-dry-bulb-type indicating hygrometer which is being offered by Taylor Instrument Cos., Rochester, N. Y. By loosening two thumb screws, the complete assembly swings out on a triple-hinged bracket. The instrument is said to be especially adapted for use on air-conditioning supply and return ducts and raw woolen stock dryers as well as cotton, wool, and rayon cloth and yarn dryers, and other closed compartments where humidity plays an important role.

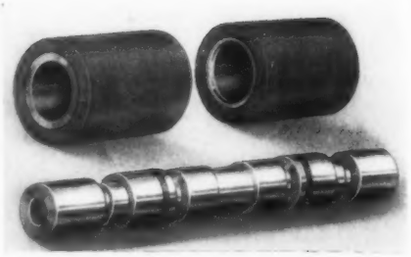


Indicating Hygrometer (Taylor Instrument)

Ball-Bearing Top Rolls

Announcement of a ball-bearing top roll for spinning frames has been made by Saco-Lowell Shops, 60 Batterymarch St., Boston. The arbor is designed with a large factor of safety to prevent deflection under ordinary operating conditions. Shells are precision machined, and are held in position on the arbor by a simple but efficient locking device. Quick and easy removal of shells from the arbor can be effected without tools. Lubrication, with a rust-inhibiting compound, is required only at long intervals, generally about every 4,000 operating hours.

Other advantages cited are better drafting and more regular yarns due to freedom of movement of rolls; prevention of lint and dust entering the bearings, by their being inclosed; easy cleaning of dry, stationary arbor by wiping with a cloth or blowing off with a jet of compressed air; prevention of oil on cots and spotted yarn, by elimination of daily top-roll oiling.



Ball-bearing top rolls (Saco-Lowell)

Useful Accessories for Textile Mills

Form-Writing Machines. A selective-column, form-writing machine has recently been announced by Burroughs Adding Machine Co., Detroit, Mich. The selective device permits operators to tabulate directly to any desired column or form, merely by depressing a key which selects that column; this is said to speed up work considerably.

Water Softener. Announcement of manufacture of its Accelator water-softening equipment in a range of capacities has been made by International Filter Co., 59 E. Van Buren St., Chicago. It is stated that with this equipment treating chemicals are applied to the water in a new way, making possible more complete and rapid softening, lower cost, and smaller space requirements.

Motorized Conveyor. Louden Machinery Co., Fairfield, Iowa, is marketing a motorized conveyor for overhead track systems. The conveyor negotiates inclines, maintains uniform speeds going down grade, and has a range of from 60 to 600 ft. per min.

Viscosity Meter. An electronic viscosity meter, of interest to producers of coated fabrics and others having to make frequent viscosity measurements, has been introduced by Tech Laboratories, Jersey City, N. J. The new instrument has a simple and accurate electronic indication which broadens its applications; by use of loaded balls the range has been extended to permit readings from 75 to 1,000,000 centipoises.

Blower. Clements Mfg. Co., 6650 S. Narragansett Ave., Chicago, has announced the Model HP Cadillac blower.

Outstanding features of the blower are said to be that it can be operated either at high or low speed, depending on the requirements of the job, and that it can be used either as a blower or as a suction cleaner.

Reflectors. Equipment is being offered by Curtis Lighting, Inc., 1123 W. Jackson Blvd., Chicago, for a variety of fluorescent lamp installations; included are exposed or concealed applications, single lamp assemblies, continuous linear assemblies, suspended or surface-mounted installations, etc. The reflectors are especially recommended for installation where increased lighting efficiency or directional lighting is desired.

Agitator Drive. Recently announced is a Unipower agitator drive, manufactured by Patterson Foundry & Machine Co., East Liverpool, Ohio. The new unit is equipped with anti-friction ball bearings which, it is said, have withstood continuous service at 300% of normal rating. The guide bearing in the base of the drive is of the pre-lubricated type which, it is asserted, eliminates leakage of lubricant into the product being handled. The unit is built in all sizes up to 50 hp., and is obtainable in many speeds.

Electrical Equipment. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has announced the following:

A new De-ion combination linestarter, consisting of a magnetically operated linestarter and a manually operated motor circuit switch, combined in the same cabinet.

A protective link, to be connected between bushing terminals and windings of transformers; its purpose is to disconnect the transformer automatically from the lines in case of internal trouble.

A new form of regulator making it possible to hold constant the speed of d-c. motors within limits from no load to full load; the regulator depends for its response on a flywheel, which is sensitive to rate of change of speed, and to a member responsive to change in speed, both acting on a single pair of contacts.

Cleaners and Blowers. Recent improvements made to the portable electric blowers and cleaners manufactured by Breuer Electric Mfg. Co., 5100 N. Ravenswood Ave., Chicago, include increased waterlift, addition of double grease seal ball bearings, and redesign for increased cleaning efficiency and speed.

New Dyes and Chemicals

Textile Oil

A textile oil of improved quality has been announced recently by Standard Oil Co. of New Jersey, 26 Broadway, New York. Known as Necton 40, the new oil is characterized by unusual light-insensitivity. The oil possesses excellent original color and undergoes only slight color degradation when exposed to ultra-violet light. Necton 40 has a Saybolt viscosity of approximately 105 sec. at 100° F. and is, therefore, suitable for use in formulating sizes, cotton softeners, and similar finishing materials which do not require white mineral oils. It is stated that it also serves as an excellent base for fiber-processing lubricants, such as wool oils, etc. Its light stability also makes it applicable to twine and cordage, minimizing darkening during shelf life.

Sweet Potato Starch

It has been announced recently that D. Scrivanich & Co., 5920 Jefferson St., Philadelphia, is distributing commercially 5,000,000 lb. of domestic starch extracted from southern sweet potatoes under public-service patents and methods insuring remarkable uniformity of the product. Sweet potato starch is rich in beta amylose, the soluble fraction in starches. It pastes and completely gelatinizes within 25 min. and at lower temperatures than many other starches. It is described as a white, amorphous, tasteless, and odorless powder, which cooks without splashing, attaining peak viscosity within a few minutes, but withstanding prolonged cooking without appreciable thinning out. Because of the minute particle size, it is said that sweet potato starch penetrates textile fibers well, doing a true sizing job, without clouding of colors, and greatly reducing mussing and cracking of fibers.

Du Pont Dyes

E. I. du Pont de Nemours & Co. announces the following new products:

Ponsol Gray RL Paste, a vat color producing neutral to reddish shades of gray, depending on the strength of the dyeing; it shows the good all-round fastness of the vat color group and is particularly resistant to washing, light, perspiration, hot pressing and cross-dyeing.

Acetamine Diazo Black BGD, an acetate dye producing full, well-penetrated shades of black, particularly on acetate rayon satins and taffetas; the color shows excellent fastness to sublimitation and crocking and satisfactory fastness to other destructive influences commonly encountered.

General Dyes

General Dyestuff Corp. announces the following new products:

Fastusol Green L6BL, a homogeneous direct dye which gives fine bluish greens of good evening shade; in fastness to light it is said to surpass all previous bluish green brands; fastness to water can be improved by aftertreatment with Solidogen B.

Chrome Fast Yellow GD, a chrome mordant dye which corresponds to Chrome Fast Yellow 5GD in properties and uses, being suitable for direct prints and color discharges on vegetable, animal, and synthetic fibers, as well as mixed fabrics; on cotton, rayon, wool, and silk fabrics, distinctly more reddish yellow shades are obtained than with Chrome Fast Yellow 5GD; in medium and full depth, the prints possess good fastness to light and wet processing.

Dulling Agent

A new dulling agent for application to mixed fabrics composed of spun-rayon and wool has been announced recently by General Dyestuff Corp., 435 Hudson St., New York. Known as Dullit MG, the new product is highly substantive to rayon and only slightly substantive to wool. When applied to mixed goods, the material goes mainly on the rayon and only sparingly on the wool. Accordingly, mixed fabrics can be delustered to resemble all-wool materials. In addition, the product does not affect the shade or fastness of dyeings. Dullit MG is a white pourable paste, which is easily stirred up with cold water and then further diluted. It is extremely resistant to hard water. It is first stirred with an equal quantity of water at about 75° F. and when the paste is fully homogeneous, further water is stirred in until a 20% stock solution is obtained. This stock solution is added in the usual manner, if necessary in several portions, through a filter or sieve to the bath previously heated, not above 95° F. The delustering is also carried out at that temperature, on a real machine, jig, pad, or other suitable equipment.

Finishing Agent

A special type of fatty alcohol sulphate finishing agent, Avitex VS, has

been announced recently by E. I. du Pont de Nemours & Co., Wilmington, Del. The new product is designed to give a finish with a very smooth surface and a fairly full hand; particularly on many types of spun-rayon materials and continuous-filament rayon fabrics, such as flat crepes, twills, serges and taffetas. It is said to impart an appearance and feel of quality to the cloth and to improve the brightness of whites on prints. The closeness of the face of the cloth is increased and the oiliness decreased, producing a greater resistance to soiling. It is stated that the compound shows extreme resistance to hard water, and is stable in both acid and alkaline solutions.

New Publications

Textile Testing

TESTING OF YARNS AND FABRICS, 3rd Edition: H. P. Curtis, Pitman Publishing Corp., 2 West 45th St., New York: $2.50.

Subjects treated in this book include analysis of woven fabrics, identification of materials used for yarns, chemical tests for textile fibers, estimation of sizing, fastness testing, and strength tests. The book should be of value to everyone interested in textile testing. For the following reasons, however, it must be used judiciously: many of the tests do not correspond to the approved or official methods employed in this country; much of the apparatus described is of European manufacture and is not generally available in the United States; a few of the procedures described are likely to give inadequate or misleading results.

Fashion as a Livelihood

FASHION FOR A LIVING; by Gertrude Warburton and Jane Maxwell; McGraw-Hill Book Co., New York; $3.00.

This is the story of a young, vital, growing business told in an enthusiastic and biographical manner. The reader thrills with the various aspects of this business of fashion and the many success stories tied up with it.

Don't mistake us. The book is not the Horatio Alger type at all. But throughout every chapter vignettes of the people who have made fashion the great force it now is, and the methods they used to make it that, gives this volume a readable quality that lifts it above the average level of semi-technical matter. Besides, everyone likes to read about those who have created interesting jobs for themselves and new beauty for us all.

Different from those forerunners which poked fun at fashion, and others which gave to fashion experts some occult power, this book takes fashion for a living seriously, shows the many phases of livelihood connected with it, then compactly describes the better methods of handling each. Lots of books tell the reader how to handle a job well, but this one goes much further. It tells the reader how to get a job! And whether you want to work in fashion, or already work in fashion, or just want to read a book, you can't go wrong with this one.

Production of Wool

SHEEP AND WOOL; M. E. Ensinger and J. H. Kennedy; Extension Service, Massachusetts State College, Amherst, Mass.

Part I of this 52-page pamphlet includes information on the sheep situation, factors to be considered in establishing the flock, care during the breeding seasons, the lambing season, parasites of sheep, etc. Part II considers production and handling of the wool crop, requisites of wool, wool grading and sorting, the wool market, etc. This part of the book also contains a useful glossary of wool terms.

A Salesman Talks

SO YOU'RE GOING TO SELL, by Donald B. Tansill; John C. Winston Co., Philadelphia; $2.00.

For a successful salesman to write a handbook on successful selling without stressing the capital "I" is a difficult job, but Donald Tansill has rung the bell in this book.

First the author sells the reader on selling as a career . . . and then he briefly but firmly runs the entire gamut of do's and don'ts for the ambitious salesman. He analyzes the reaction of the prospective buyer to the various tactics of the hopeful seller, and gives interesting case histories to prove his points.

The book again proves there are no short cuts to getting ahead. It definitely cleaves to the old order of ladder-climbing, with knowledge of your goods, knowledge of your market, and willingness to work as the three most important rungs. However, it really is more than a collection of recipes for selling. It is a concentrated course in etiquette, psychology, and showmanship.

The fact that the author is vice-president of Pepperell Mfg. Co. in charge of sales, makes this volume of particular interest to textile men.

An Advertiser Talks

SELLING MEN'S APPAREL THROUGH ADVERTISING; by M. M. Lebensburger; McGraw-Hill Book Co., New York; $3.00.

Advertising is a tough game, and we know it . . . but just how tough we never realized until reading this very thorough book on the subject. Ably handled, the dissertation is written by an advertising manager who knows his stuff and who is generous enough to share his knowledge with others. While the book definitely is concerned with men's apparel, it carries thought and general policies which could well be used for any line of goods.

It covers the subject frontwards, backwards, inside and out. It points out the definite relation between selling and advertising, and then taking up the latter it discusses the methods of preparing copy, media of presentation, and even breaks down comparative costs relative to probable results.

Reading this book makes one stop, listen and think before taking up advertising as a life-work . . . but if one does decide to earn a living this hard way it would be mighty handy to use this volume as a guidebook to constructive effort in that field.

List of Textile Chemicals

TEXTILE CHEMICAL SPECIALTY GUIDE; Rayon Publishing Corp., 303 Fifth Ave., New York; $2.

This reference book has been compiled for spinners, weavers, throwsters, dyers, printers, and finishers of all textile yarns and materials. Listing about 1,500 individual products available from nearly 150 manufacturers, it is the most complete compilation of textile chemical specialties which has appeared in this country. Cross-indexing permits the user of the book to obtain information on a given product quickly and easily. Two suggestions for improvement of subsequent editions are: first, provision of sufficient blank space in the alphabetical list of brand names, at least, to permit the user to write in data on new products as they are introduced to the textile industry; and, second, addition of a section grouping the textile chemical specialties according to their chemical composition when this is known.

News of Suppliers

U S Bobbin & Shuttle Co. has moved its main southern sales and service office from Monticello, Ga., to the company's main southern plant in Greenville, S. C. The company announces the return of D. C. Ragan to its southern sales force. Mr. Ragan, who was a member of the organization prior to 1930, will cover South Carolina. Mat Cousley, who has represented the organization in South Carolina, has transferred his operations to Georgia.

Onyx Oil & Chemical Co., Jersey City, N. J., has appointed R. Allen Watson as sales representative and mill consultant covering Pennsylvania, Maryland, Virginia, West Virginia, Delaware and sections of New Jersey and New York.

Advertising Federation of America, at its 35th annual convention, in New York, June 19, awarded Frances M. Suarez, advertising manager of the Philadelphia Quartz Co., century old chemical manufacturer, a certificate of merit under the Josephine Snapp National Competition for her contribution to advertising during the year 1938. Senator Arthur Capper made the presentation.

American Paper Tube Co., Woonsocket, R. I., has appointed Earl D. Melot as its representative in the North Atlantic territory, with headquarters at 322 North 15th St., Allentown, Pa. He will handle the entire tube, quill and bobbin line of the company, as well as the products of the Shambow Shuttle Division.

W. J. Westphalen, president and general manager of Laclede-Christy Clay Products Co., St. Louis, was re-elected for the second consecutive term as president of the American Refractories Institute, on June 1.

Beetle Products Division of the American Cyanamid Co. has transferred the sale of Beetle resins for textile finishing to its affiliate, Calco Chemical Co., Inc. This change places at the disposal of the textile finisher the specialized experience of the Beetle Products Division in the manufacture of urea resins, and of the Calco Chemical Co. in the sale and servicing of products for the textile industry.

James Talcott, Inc., New York, has elected Peter H. B. Cumming an assistant secretary. Mr. Cumming has been with the Talcott organization for the last two and a half years.

Hasler-Tel Co., after more than 15 years at 461 Eighth Ave., New York, moved on July 1 to the Underwood Building, 30 Vesey St., New York. The firm is sole distributor in the United States for the Hasler speed indicator.

American Engineering Co., Philadelphia, has purchased the Diamond Machine Co., Providence, R. I., and will continue the manufacture of the Diamond face grinder in its Philadelphia plants.

A. Benson Davis, formerly sales manager of Fidelity Machine Co., Philadelphia, is now associated with the Standard Mill Supply Co., Pawtucket, R. I.

Mathieson Alkali Works, New York, has inaugurated the latest thing in chemical transportation with the service rendered by the diesel tanker, "Dolomite 4," which plies between the company's Lake Charles plant and its new Norfolk waterfront terminal. "Dolomite 4" is fitted with five main bulkhead cargo holds, each lined with pure nickel. She is 301 ft. long and has a capacity of 4,000 tons of liquid caustic soda. The vessel aids in making prompt deliveries to the rayon plants in Virginia at low transportation cost. The nickel-lined holds are designed for prompt and complete cleansing, so that the hold, regardless of the cargo handled, can quickly and efficiently be adapted to the handling of grain and other edible products.

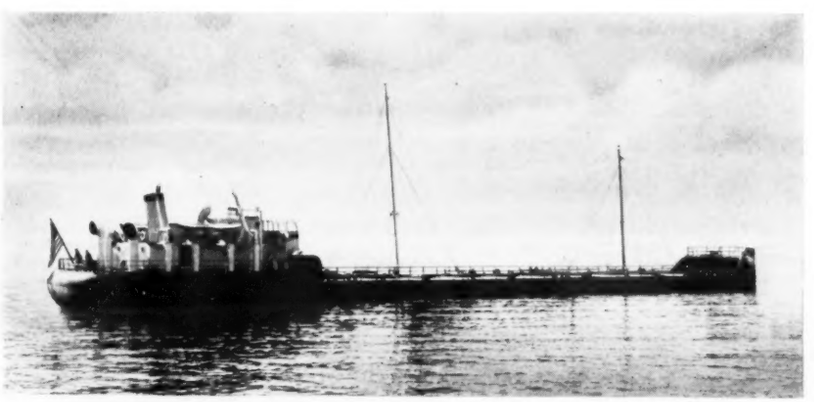
SEX APPEAL AND MACHINERY—Allis-Chalmers Quick-Clean motors, Texrope drives and control equipment are exhibited above as playing a vital part in the manufacture of summery cotton fabrics, through their application in scores of textile mills in the South and East. This exhibit is in the windows of the exclusive Smartwear-Emma Lange Shop in Milwaukee, Wis., in connection with Wisconsin Products Week

Stewart-Warner Corp. has appointed E. A. Perkins and F. T. Adams, as Alemite distributors for the Buffalo, N. Y., area, according to announcement by F. R. Cross, sales manager of the Alemite retail sales division. The new distributors were formerly connected with the Alemite Co. of Illinois.

Scholler Brothers, Inc., Philadelphia, has completed plans for a two-story factory addition. Horace W. Castor, Philadelphia, is the architect.

Link-Belt Co., Chicago and Philadelphia, has been appointed by the Twin Disc Clutch Co., Racine, Wis., as distributor for Twin Disc friction clutches and clutch couplings in all industrial fields.

New Departure Division of General Motors Corp., Bristol and Meriden, Conn., reached its 50th birthday on June 27 and celebrated the occasion with a dinner for foremen and executives at Lake Compounce. In the group were 492 employees who had served New Departure for 20 years or more. High executives in General Motors were honor guests. The record starts with the formation of the New Departure Bell Co., in 1889, when a single room was rented and a half-dozen men and women were employed. Then followed such products as bicycle bells, lamps, coaster brakes and in 1908 a



DOLOMITE 4, new liquid caustic tanker built for service of Mathieson Alkali Works

JENKINS VETERAN VALVE CONTEST JUDGES IN ACTION—(Left to right) Jim Channon, manager of *Mill Supplies;* Harvey Conover, publisher of *Mill & Factory;* T. J. F. Moffett, editor of *Plumbing and Heating Journal;* and Phil Swain, editor of *Power.* The contest featured the 75th anniversary of Jenkins and was a search for the outstanding "Veteran" Jenkins valve installation in each of the seven contest areas. The prize winning value in the Atlanta territory is installed at Piedmont Cotton Mill, Egan, Ga. It is a 4-in. Jenkins, iron-body, glove-valve with composition disc, installed on steam line from boiler to pump; has been opened and closed an average of 3 times per day since it was installed in 1899; practically no maintenance—only parts replaced were gaskets; valve disc was refaced with a lathe once and reversed once; Paul F. Waller, engineer in employ of the mill since 1900, confirmed information that the valve has been under constant pressure every day—even during shut-downs, to maintain pressure in case of fire.

line of automobiles. Later production centered on ball bearings, not only for vehicles but for a wide variety of industrial uses.

Babcock & Wilcox Tube Co., Beaver Falls, Pa., has promoted Luke E. Sawyer, formerly assistant general superintendent, to be general superintendent.

National Adhesives Corp., New York, has added a lacquer research laboratory and technical service department to its Lacquer Division at Dunellen, N. J.

Marvin W. Smith, manager of engineering of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., was elected a vice-president of the company in April. He will direct all the company's engineering activities.

Taylor Instrument Co. of Canada, Ltd., recently celebrated its twenty-fifth anniversary as a Canadian organization. During all that time it has been under the direction of A. H. Allen, managing director.

Quaker Chemical Products Corp., Conshohocken, Pa., has added James B. Jones to its laboratory staff for control and development work. Mr. Jones is a graduate of the Philadelphia Textile School and completed his chemical work at Rensselaer Polytechnic Institute.

Thomas Truck & Caster Co., Keokuk, Iowa, has purchased the business of Wm. H. Sippel Corp., South Bend, Ind., manufacturers of truck casters, floor trucks, industrial trailers, and skid platforms. The Sippel products will be combined with the Thomas line of casters and trucks at Keokuk.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has established a branch office and warehouse in Newark, N. J., in the Industrial Office Building, 1060 Broad Street. C. A. Pihl has been appointed as Newark branch office manager.

Cutler-Hammer, Inc., Milwaukee, has appointed G. S. Crane as vice-president in charge of sales and engineering. He has been with the company for 29 years.

The 23rd Annual Eastern States Exposition, will be held in Springfield, Mass., Sept. 17 to 23.

G. P. Bauman, of Textile Servicing, Wescosville, Pa., sailed June 10 for a two months business trip to Switzerland, Germany and England.

Amalgamated Chemical Corp., Auburn St. and Trenton Ave., Philadelphia, has been formed by the sales and technical staffs formerly with W. H. & F. Jordan, Jr., Mfg. Co. Included in the group are Harold B. Dohner, Robert A. Bruce, John T. McGrogan, Frank T. Quinlan, John M. Jester, and others.

International Filter Co. has moved its administrative and sales offices from Chicago's loop district to the company's factory at 325 W. 25th Place, Chicago.

Leipzig Trade Fair will hold its 1982d session this year from Aug. 27 to 31. Some 6,000 firms from 25 countries will display their standard wares and newest items.

Farrel-Birmingham Co. held its third annual service banquet June 6 at Ansonia, Conn., with 130 men who have been with the company over 25 years as guests of honor. The high-spot of the evening was presentation to Edwin Van Riper of a diamond-studded watch charm in recognition of his 60 years of service. Nine men have been with the company for over 50 years.

American Chemical Paint Co., Ambler, Pa., has appointed Tom Cheetham as sales and engineering representative for the A. C. P. wool-scouring process. Mr. Cheetham was formerly associated with Procter & Gamble Co.

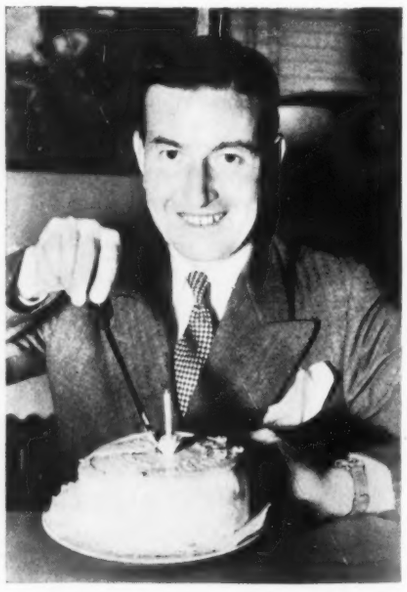
Esterline-Angus Co., Inc., Indianapolis, has appointed H. L. Hildebrand as exclusive representative for the Metropolitan New York area.

Korfund Co., Inc., Long Island City, N. Y., announces that sales, service and installation of Korfund anti-vibration products in the Western Pennsylvania territory is now handled exclusively by Dravo Corp., Pittsburgh, Pa.

Wickwire Spencer Steel Co. and its subsidiary, American Wire Fabrics Corp., have removed their combined general office and eastern district sales offices to 500 Fifth Ave., New York.

Hercules Powder Co.'s New York office is now located at 500 Fifth Avenue. W. M. Annette is in charge.

P. Y. Danley, of Westinghouse Electric & Mfg. Co., Springfield, Mass., was elected president of the Air Conditioning Manufacturers' Association at the annual meeting, recently at Hot Springs, Va. Other officers are S. E. Lauer, York (Pa.) Ice Machinery Corp., vice-president; P. A. McKittrick, Parks-Cramer Co., Fitchburg, Mass., treasurer; and W. B. Henderson, Washington, D. C., executive vice-president.



R. M. DOWLING, sales and advertising manager of the Sanforizing Division of Cluett, Peabody & Co. inspects one of the 619 birthday cakes which his company distributed to leaders of the textile and retail trade to celebrate the landslide to Sanforized-Shrunk standard in the shirt field. In the year from June 12, 1938, to June 12, 1939, the number of major shirt lines which are Sanforized-Shrunk increased from three to 162.

THE OVERSEERS' CORNER

INFORMAL CLASSES FOR WORKERS

A Pete & Bill Discussion

"I've got a new job, now!" said Pete brightly, as he and Bill left the mill in the late afternoon.

"What d'yer mean?" glowered Bill, wondering whether this meant jumping the company or picking up some plum he had missed.

"I mean I've turned night-school teacher," Pete replied.

"How come?"

"Well five young fellers in my department said they wanted to improve their knowledge of mill figuring, so I'm taking them on down at the house for an hour, three evenings a week."

"Why don't you let the schools do that work, Pete," said Bill. "You'll be looked upon as playing favorites by the boys who aren't in on your class, and your dope may not be so hot after all. Down to the school they've got books and men who know how to use them. And anyway you ought to use your free time for relaxation to freshen you up for the next day's job at the mill instead of taking your job home."

"No, Bill—I'll get a lot of refreshment from these young fellers. I'll be learning things along with them. And as for playing favorites, anybody in my department that wants to can come along. If the house doesn't hold them, we'll sit out-of-doors. We can get over the work that is necessary for my department faster than the school can because we'll shoot right at the elements that are needed on the job. These boys have been to school, anyway, and what they're doing now is a kind o' post-graduate course. A selfish slant on it is that the better these fellers are, the smoother my room'll run. Some day our mill may have a school of its own, like some of the big fellows!"

Do you think an overseer should mix into the education of his subordinates?

Letters From Readers

Tact and Intoxication

("The Intoxicated Worker," Pete & Bill, May, 1939)

Editor, Overseers' Corner:

This letter regarding the discussion by Pete and Bill, in the May issue of *Textile World*, on the excessive use of intoxicants, may be rather late. Personally, we do not use liquor in any form, yet we think that we can discuss the problem fairly.

In the first place we have known more than one foreman to be out "sick" on Monday morning, when almost everyone on the job knew the real reason. We can imagine that these foremen would have a difficult time handling the drink problem in their departments.

An older man on the job will probably have to be handled differently from a young man. If the laying off of a young man will wake him up, this procedure might be followed. If the older man is a good man on the job, has a family to support, is loyal and with no other serious faults than an occasional spree, we cannot see how matters would be improved by firing him.

L. P.
(*Alabama*)

Holds No Secrets from Second Hand

("Secret Processes," Pete & Bill, January, 1939)

Editor, Overseers' Corner:

Your page is great, but allow me to express my comments on "Secrets Are Bread and Butter." As to Mr. J. C. of Rhode Island, I am going to differ some.

An overseer may have some pet theories, that he does not care to broadcast. But as to taking one's assistant, or second hand, into his confidence I think he should do that. For instance, if the overseer should meet with an accident, or should take seriously ill, or be called away from his mill, who would be called upon to step into his shoes while he is away? Of course his assistant, or second hand would have to.

And how in the world could he keep the room straight, and do all the changing unless he had access to the overseer's desk and layout books? He is required to take his second hand into his confidence. My idea of an overseer wanting to keep his assistant in the dark is that he is afraid of him, or is trying to cover something up. In either case I would cash my meal ticket in, and resign. For his time is short anyway.

O. A. Hester
(*South Carolina*)

Requisites of a Section Man

Editor, Overseers' Corner:

I have been a constant reader of Textile World for a good many years and enjoyed following the pages of Overseers' Corner. I have received a great amount of benefit and inspiration from Pete and Bill. I don't see how any one could help being a better section man, second hand, overseer or superintendent if he continues to study and apply the experience of others to his daily work. I am not a college man; learned mine from the broom handle up, but I will try to write what I think it takes to make a good section man in the spinning room.

He must be a quick thinker, and know the machines under his care, know how to doff and spin as well as

CONTRIBUTIONS to the letters and practical helps in "The Overseers' Corner" are paid for when published without regard to length. We use letters (not over 200 words) discussing the material on this page or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute practical helps or kinks which are published (not over 500 words) will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. Contributions of greater than specified length may be given consideration as articles. If these pages interest you —contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York.

A Safety Record

A safety record was announced at the Perfection Spinning Co., Belmont, N. C., by D. P. Stowe, secretary-treasurer.

In connection with the record, which shows a consistent operation of over 1½ million man-hours without a single accident requiring medical attention, Gov. Clyde R. Hoey sent Mr. Stowe a congratulatory telegram.

The record covers a period of approximately six years and is one of the leading safety records for all industrial plants in the South.

to fix, be alert to detect any unusual noise, know how to build a good bobbin of yarn so as to avoid excess waste at the next process, be it high speed spooler, winder, or the old style spooler. He must know how to get the cooperation of the other help, and have a good system of doing things and getting things done at the proper time. He must see that doffers and spinners do their proper share of cleaning gears, spindle bases, rails, rockers, weights and the inside of gear heads. Further, he must see that all belts are cleaned and dressed at certain intervals and that they are on tight pulleys. He must have a good system of checking the little things, such as keeping the lever screws adjusted to obtain the best drafting, or the saddle screws adjusted to keep the stirrup from touching the front roll. Top clearers must be in good condition and kept clean to prevent any excess waste from dropping through on the yarn. He must have a system of keeping check on his travelers, and should have a certain number of frames changed each week. He must keep his spindles oiled. Finally, he must train himself to see the little things, such as flat pitman rolls, worn cams, worn traverse chains—in short, keep in touch with all details, however small, on his job.

J. W. NABORS
(Scottdale, Ga.)

Overseers' Practical Helps

Visual Presentation of Waste Costs

Most any mill manager would give an eye-tooth if everyone could be made to realize that the cost of parts and supplies runs into sizable figures. Mr. E. G. Dunn, a vice-president of the Avondale group, has done just this in a most novel and effective way. As one enters the main gate of the mill his attention is immediately attracted by what seems to be a cross between a bulletin board and a display case. Behind the plate-glass front there are all sorts of parts and supplies. There are a couple of quills and warp bobbins, a pair of speeder bobbins, shuttle and loom parts, a bottle filled with lubricating oil, belting, light globes, a broom, etc. Underneath each item are figures showing the cost of each individual unit and the total amount that the mill spent for that item during the preceding year.

There is a quill of clean filling, beside it one that has fallen on the floor and become dirty; a half-filled bobbin of speeder roving, beside it one that is oil stained—and underneath each are figures showing their value before and after becoming soiled. Tacked to the board is a sales-tax token, beneath it a lot of spinning waste, and between the two are the following words "You'd pick up this—but do you pick up this?"

In the center of the board is a typewritten letter, signed by the president of the mills, which gives the total amount spent for parts and supplies during the last year, and tells how the load would be lightened if everyone would save a few pennies on supplies or prevent a bit of waste each day.

—J. C. NORMAN
(Alabama)

Display case on mill's lawn provides method of dramatizing waste costs

Waxing Knots

A worsted hosiery manufacturer complained that yarn broke at a large proportion of knots. The knots were carefully examined; slub-catchers were set so that any knots made in processes prior to winding were broken; and winder operatives were instructed to tie a type of knot known to be suitable for hosiery. Still the trouble persisted.

Finally, it was noticed that the complaint cropped up only when waxed yarns were in use. Observation showed that during cone-winding operators tied knots correctly but did not run them through the waxing attachment on the winding machine, as this was placed before the slub-catcher which was set to break the yarn at knots. In other words, the parts which most required waxing to help them through the needles; viz., the knots, were being missed.

A small casting was made to hold a round bar of wax, and one of these was attached to every winding spindle. Operators were instructed to rub knots firmly on the bar of wax; this cured the complaint.

—G.D.H.
(England)

Changing Hose Sizes

There seems to be quite a difference of opinion among circular-knitting-machine fixers in this community as to the best method of changing machines to knit different sizes of hose. Some say it is necessary only to adjust the screws on the main pattern drum that controls the tension of the stitch in the foot, running them in or out according to whether the hose is to be made larger or smaller. For example, they

say that if it is desired to change the size of half-hose from 10 to 11, it can be done much more quickly by turning the screw on the drum slightly than by changing the number of links in the pattern chain.

While I agree that the size of hose can be changed this way much more quickly than by adding links to the pattern chain, I believe it is poor sizing practice. Tampering with these screws changes the tension, and therefore the fineness of the stitch, which should not be bothered once it is properly adjusted to the gage of the machine.

—J. W. H. *(North Carolina)*

(Readers who either agree or disagree with J. W. H. are invited to express their views on changing hose sizes—*Editor*)

New Crop from Textile Schools

Annual graduations bring new supply of man-power to the industry

THERE IS one branch of the textile industry in which there is never a depression. That is textile education. Year in and year out, the schools go about their job of turning out new man-power for textile jobs—and each year witnesses further progress. In fact, since the inception of the Textile Foundation's education program, the rate of that progress has been greatly accelerated.

Brief facts concerning the graduations at the different schools are presented below.

Bradford Durfee Textile School, Fall River, Mass. Awarded diplomas to 39 day students and gave 9 certificates to day students. Large evening class received diplomas and certificates. Award of $50 made to Thomas Adams Mathews, member of the first year chemistry and dyeing class, as the student who maintained the highest scholastic standing. Two scholarships of $50 each to students graduating this year were awarded to John Hinchcliffe and J. Milton Ingham.

Clemson Textile School, Clemson, S. C. Graduated 39 students, of whom 31 had been placed in the industry before graduation; remainder probably placed by now. Joseph Gordon Smith, of Clearwater, S. C., received National Association of Cotton Manufacturers medal. Textile Colorist award went to J. K. Smith of Bloomfield, N. J.

Georgia School of Technology, Atlanta, Ga. Graduated 27 students in textile engineering. All the graduates have been placed. J. A. Stapleton, of Decatur, Ga., was awarded the medal of the Cotton Manufacturers Association of Georgia. W. G. Lee, Jr., of Macon, Ga., received the N.A.C.M. medal.

Lowell Textile Institute, Lowell, Mass. 14 students received degree of bachelor of textile chemistry; 14 the degree of bachelor of textile engineering; 3 received M.S. degree in textile engineering, and 11 students received diplomas. H. Kendal Dick, of Lowell, received the N.A.C.M. medal, which was presented by Russell T. Fisher, president of the association. Herbert C. Olsen, of Reading, Mass., received the Louis A. Olney book prize. Frederick M. Feiker, who has conducted the Textile Foundation's program of textile education for several years, was the principal speaker at the Commencement.

New Bedford Textile School, New Bedford, Mass. Graduated 29 in diplomas courses and gave a large number of certificates to students in both day and evening classes. William A. Karl, a graduate of the school, and now a director of the Firestone Cotton Mills, awarded the N.A.C.M. medal to William Gordon Ogden. The winner of the William E. Hatch key was Isaac Steiner, and the winner of the Peter Slater medal was Leonard Birtwistle.

North Carolina State College, Raleigh, N. C. Awarded degree of bachelor of science in textile manufacturing to 32; B.S. in textile management to 11; B.S. in weaving and designing to 10; and B.S. in textile chemistry and dyeing to 5. Degree of M.S. in textiles was conferred upon 3 men. Expected that every member of the graduating class would be placed by June 15.

Philadelphia Textile School, Philadelphia, Pa. Awarded diplomas to 36 in the regular textile course and 11 in the chemistry, dyeing and printing course. Walter A. Qualman, Jr., won the N.A.C.M. medal, and also the alumni association prize. A large number of certificates awarded for both day and evening classes. Charles Child, well-known artist, addressed the graduating class.

Rhode Island School of Design, Providence, R. I. In the textiles and clothing department, 8 were awarded diplomas for work in costume design, 7 in general textiles, and 3 in textile design. Esmond Mills prize awarded to Richard T. Mullin; Southern-New England Textile Club scholarship to Frederic B. Read, Jr.; Alumni Fellowship for Travel and Study to Elizabeth Audrey Pike.

Texas Technological College, Textile Engineering Department, Lubbock, Texas, graduated three. Dr. T. O. Walton, president of Texas A. & M. College, addressed the exercises at which 344 students from other departments also received diplomas. Miss Opal Hill was high ranking textile student.

Wage-Hour Law

Also taxes and weaving problems considered at Greenville S.T.A. meeting

SPIRITED DISCUSSION of the Wage-Hour Law; a talk by T. M. Marchant, on trends in legislation and taxes; and a brief technical session were features of the spring meeting of the Weaving and Slashing Section, South Carolina Division, Southern Textile Association, held in the Poinsett Hotel, Greenville, S. C., May 27. J. A. Lyons, superintendent, Orr Cotton Mills, Anderson, S. C., chairman of the division, presided.

Jas. F. King, assistant Wage-Hour administrator, from Washington, D. C.; and W. F. Gaffney, field representative, Charlotte, N. C., were presented and spoke briefly on some of the problems facing the administrator and ways and means of meeting them.

The first speaker, Mr. King, said that if we could enlarge the ability of the people to buy cotton goods, the problem of over-production in the textile industry would be solved. "Only three cotton shirts are manufactured in this country per year for every man and boy and only one cotton sheet per

family," he said. "We do not think," he continued, "this Wage-Hour Act is a panacea, but it is the first step." He spoke of the Textile Industry Committee and pointed out that the South is fairly represented.

Mr. Gaffney was the target for numerous questions on the subject of learners, and their rate of pay. He defined the administration's attitude and cited cases of interest. Special permits can be secured under certain conditions. "One of the rules," he said, "is that no person will be considered a learner who has within the last three years worked an aggregate of eight weeks at the operation, or in the industry in question. The second is that the learning period for the individual worker will be not in excess of eight weeks." He explained that learners' certificates might be secured for isolated plants where an experienced labor market is not available. These certificates might also be obtained when a mill is putting idle machinery in operation, but not to take care of a fluctuation in orders. It was pointed out that the attitude of the administration toward the question of learners was different from the old N.R.A. policies and the difficulties would have to be worked out as best they could using "a good deal of tolerance."

T. M. MARCHANT, president, Victor-Monaghan Co., Greenville, S. C., spoke briefly on the trend of state and national government in taxation and legislation, and quoted statistics to show that the costs of government in South Carolina have risen enormously. "If a mill does not make money," Mr. Marchant continued, "the time is not far in the future when it will have to close and all operatives will be shoved off the payroll. Without profits there will be no capital, investment, and without capital investment there will be no wages. It is just as important to the wage earners, to the banks, and to the consumers that the industry makes money as it is to the people who own the property." In conclusion, Mr. Marchant mentioned ways in which government costs can be reduced and stated that theses costs must be reduced before industry and the people can prosper.

Discussion of weaving problems was led by C. H. Strickland, superintendent, Appleton Co., Anderson, S. C. In discussing the changes necessary in replacing 7⅞-in. with 8-in. bobbins, seveveral speakers agreed that, while various methods might solve the difficulties in individual cases, it is advisable to take up the matter with the loom builder.

The causes and remedies of filling breaking on the change, cotton or rayon, were discussed by J. M. Cathcart, assistant-superintendent, Chiquola Mfg. Co., Honea Path, and G. G. Simmons, assistant-superintendent, Drayton Mills, Spartanburg. Concensus was that the most important feature is the loom adjustment and of seeing that the battery is properly filled.

The chairman asked several members for a solution of the question: "On spun rayon, how can you correct rowy cloth?" C. P. Stancell, superintendent, Monaghan Plant, Victor-Monaghan Co., Greenville, replied that the setting of the loom had a lot to do with it. "In my experience with wavy cloth," he said, "we have gone back over the take-up motion and let-off motion and have seen that they were properly cleaned and adjusted and all rolls working perfectly free. The best remedy seems to be to see that you have an even take-up and an even let-off." There is more trouble from this source when weaving filament rayon than when running on cotton or on spun rayon.

The stretch of yarn when being sized was commented on by several members. On cotton yarn 1.5% was said to be about the proper amount, and on rayon 4.5% was considered to be too high.

Mr. Cottingham spoke of his experience in grading ordinary spun rayon cloth as compared with broadcloths. Rayon should be graded even more strictly than the broadcloths, in his opinion.

At the conclusion of the discussion, G. G. Simmons, assistant-superintendent, Drayton Mills, Spartanburg, was elected general chairman of the South Carolina division for the ensuing year.

Lighting and Welding

Demonstrations witnessed by master mechanics at spring meeting

FLUORESCENT LIGHTING demonstrations and presentation of moving pictures showing methods employed in welding and hard facing were features of the spring meeting of the Southern Textile Association, Master Mechanics Division, held in Greenville, S. C. Van W. Kay, master mechanic, Judson Mills, Greenville, S. C., and chairman of the division, presided.

G. E. Park, district engineer, General Electric Co., Charlotte, N. C., demonstrated various sizes and models of fluorescent lamps and explained the characteristics of this type of lamp and its adaptability to the textile industry. According to Mr. Park, Mazda lamps generate 8% light and 92% heat based on energy input, some of the energy going into the invisible spectrum. "Our problem," he continued, "in order to get more efficient light from the lamp, is to shorten some of the infra-red rays and bring them over into the visible spectrum and lengthen some of the ultra-violet, and bring them over." This has been done by permitting the rays from mercury arc lamp, the richest source of ultra-violet light, to fall on certain powders, called phosphors, causing them to glow, or fluoresce. The colors of the fluorescent light may be accurately controlled over a wide range by varying the chemical composition of the powder.

Each fluorescent lamp requires an auxiliary which starts the lamp and controls the operating current. This auxiliary is a combined reactor, transformer, and choke-coil. Some progress has been made in experiments looking toward the operation of two lamps from one auxiliary. These experiments have been successful also in developing

Group of members and guests of S.T.A. who attended recent meeting of Master Mechanics Section. Left to right: First row—Fred Tindall, T. E. Jordan, and Dewey Lawter, of Inman Mills; Miss Mary Robinson, Assn. Steno.; Vann W. Kay, Judson Mills; Second row—L. M. Kincaid, Kendall Co.; B. Ellis Royal, Secy. S.T.A.; H. H. Iler, Union Bleachery; J. S. Bonner, B. F. Goodrich Co.

an auxiliary that will give unity power factor.

Mr. Park listed six advantages of the fluorescent lamp: daylight color; absence of excessive heat; efficiency in lumens per watt; increased light on existing circuits; long light source (shape); low surface brilliance, permitting the use of bare tubes.

Questioned by various members, Mr. Parks stated two types of auxiliaries are made—the thermal, and the magnetic—to meet different needs. The average life of the lamp is above 2,000 hours. It is not affected by position, nor vibration, but is affected to some extent by the frequency with which it is turned on and off. While various colors do not seem adversely to affect the eyes, the daylight lamp seems to please most people. The long light source is also helpful in eliminating shadows. More light is being required in inspection areas to eliminate the possibility of rejected goods. These areas being smaller than the manufacturing departments are more easily equipped with proper lighting.

W. R. LAWHON, Linde Air Products Co., Columbia, S. C., assisted by T. W. Harwell and W. H. James, presented a moving picture showing problems in pipe welding and hard-surfacing with non-ferrous hard-facing materials. Some interesting facts were brought out in questions following the picture. The cost of pipe welding as compared with threaded installation was said to be 50% cheaper. This was derived from costs kept on approximately 6,000 miles of piping. Heat and vibration in the ordinary installation has no effect on the welded joint, and the life of the joint is much longer than the threaded joint. In connection with boiler repairs, Mr. James said, "it is always best to consult your boiler inspector" before proceeding with a welding job.

Fred Tindale, master mechanic, Inman (S. C.) Mills, was elected chairman for the coming year.

Four mill men at Parker District School where meeting of Master Mechanics Section was held. Left to right: W. P. Nicholson, L. A. Sutherland, and W. W. Cobb, of Norris Cotton Mills; and J. A. Telford, Ninety Six Cotton Mill.

Mysterious Defects

Often puzzle finisher of woolens and worsteds

By DAVID WELSH

STRANGE THINGS OCCUR in finishing woolen and worsted fabrics. Defects that mar the goods and call for allowance strings puzzle the finisher, until suddenly the cause is discovered. Following are a few examples which may be of help to others who encounter similar difficulties.

In one mill running on a fine line of fancy worsteds an epidemic of grease streaks puzzled the examiners and the finisher. Three or four times a day a piece would be found with a half a dozen streaks. They were finally located at the steam brush. Here, the cart was before the horse; the delivery end of the machine faced away from the press; the pieces came off in a narrow fold, one at a time; two men carried each piece around to the press, and in doing so dragged the face folds against the teeth of a 12-in. gear, licking off the grease.

Another mill had continuous complaints from the spongers about the goods being so dusty as they came over the perches that the dust filled their eyes. These complaints were still coming in when the mill hired a new finisher. The new finisher discovered an unused steam brush so covered with trash and leaders that nobody seemed to know the mill had such a machine. He put this machine to its proper use, and the dust complaints ceased.

A REAL PROBLEM was the collection of redyed black yarn in a mill running on fancy worsteds. The pile grew faster than it could be used up for selvage yarn. What to do with it nobody could even guess. There were all shades of black—rusty brown-black, blue-black, green-black, and red-black. Finally the finisher suggested using it in the filling of shepherd checks; Hands went up in horror! "Why, we use bleached white and the best selected black we can make, the finest and smoothest we have in the mill." Finally, however, the finisher persuaded them to take a spool of the worst black—also the twittiest and slubbiest, weave 5 yd. in the middle of a piece, and finish the piece. When the piece was finished, all the executives in the mill gathered at the perch. After a half-hour search, looking over back and face and from both ends of the piece, they all gave up. The optical illusion, or the blur of the black and white, covers a multitude of sins. Following this demonstration, the pile of bad blacks quickly vanished.

FOR PRODUCING A FACE-FINISH the goods in one plant were sheared on single shears, coming off in a narrow fold, then laid in cross piles, three pieces side by side, the next three pieces laid across, and so on until there were twelve or fifteen pieces. Later they were picked up, run through the steam brush, and pressed. At the finished perch the rejections had gone as high as 50% for lay wrinkles—little narrow wrinkles lying in all directions, pressed in hard. This had gone on for some time, when it was discovered that a new operator had been running the goods through the steam-brush without using the steam.

A large mill running piece-dyed worsteds in 12-piece sets had a lot of trouble with wrinkles, due to the washers and dye kettles being overcrowded. Also, when the goods arrived at the scutcher and dryer, each 12-piece set had to be put on two trucks of 6 pieces each, as they could not be folded on to one truck. Consequently, the half sets became almost inextricably mixed, causing much delay and hunting. Both difficulties were eliminated by reducing the sets to 10-piece lots; wrinkles disappeared; 10 pieces were easily folded on to one truck; the goods were handled in half the floor space; and production was not delayed looking for half sets.

MYSTERIOUS SPOTS appeared in a fine line of suedes. They were intermittent

—plentiful for a few days each week, and then none for a few days. Practically all of the goods had a white bottom. The finishing department had fallen into the habit of adding dry alkali to the soap in the washers whenever the lather looked inactive or too watery or thin. This, of course, was pounced upon as the reason for the spots; everybody thought the fibers were being burned when a chunk of soda stuck too tenaciously to one spot. This theory was abandoned when the dry soda was discontinued, but the spots continued to appear. The insides of the washers and the dye kettles were searched for protusions and were found to be perfect. The napper rolls were scrutinized for projections. The burlers were blamed for digging too deep for knots. The fulling mills were inspected after every epidemic of spots. The dyer and the finisher were at their wits' end. Finally another finisher was consulted. At first glance, he recognized them as simple mildew spots. Questioning brought out the facts that the goods finished on Tuesdays and Wednesdays were the worst offenders. From this it was easy to deduce that the goods on which the spots occurred had been left in the wet state over the week-end. This happened in the summer months, when mildew develops rapidly.

Weight of Knit Goods

Can be precalculated by means of simple formulas which give reasonably accurate results

WHAT WEIGHT of fabric should circular machines yield, and what formulas should be used to precalculate the weight? These are questions which frequently confront knitters; and, to some, they are baffling. Obviously, the answer to the first question depends upon the answer to the second.

Precalculation of weight of fabric produced by circular knitting machines is not a common practice, because there are so many variables involved. However, if all the necessary data, such as finished cloth width, wales per inch, courses per inch, stitches per foot of yarn, etc., can be obtained, it should be possible to precalculate fabric weight with a reasonable degree of accuracy.

Two formulas are used in predetermining the weight of knit tubing; viz, one for wales per inch, and the other for pounds per square yard. The formula for wales per in. is as follows:

[Cut (or needles per in.) $\times$ π $\times$ Diameter of cylinder] $\div$ [2 $\times$ Finished width] = Wales per in.

The formula for pounds per square yard is given in Tompkins' book, "Knitting Calculations," as follows:

(Wales per in. $\times$ Courses per in.) $\div$ (1.944 $\times$ Yarn No. $\times$ Stitches per ft.) = Lb. per sq. yd.

The constant, 1.944, is derived from the constant factors which occur in the fundamental equation for cotton fabric weight per square yard.

For use with rayon, Tompkins' formula can be modified as follows:

(Wales per in. $\times$ Courses per in. $\times$ Denier) $\div$ (Stitches per ft. of yarn $\times$ 10,338) = Lb. per sq. yd.

Suppose a mill is equipped with 28-cut spring-needle machines which are knitting 150-denier rayon tubing. If the plant finishes the tubing the same width as the machine diameter, it should have 44 wales per in. This is determined as follows:

(28 $\times$ π $\times$ 24) $\div$ (2 $\times$ 24) = 44 wales per in.

However, rayon tubing frequently is finished so that it is somewhat wider than the machine diameter. If fabric from a 24-in. diameter machine is finished 26 in. wide, it should have 40.5 wales per in. This is figured as follows:

(28 $\times$ π $\times$ 24) $\div$ (2 $\times$ 26) = 40.5 wales per in.

This gives a difference of 3.5 wales per in. between the fabrics finished at the two widths. This is a difference of about 8%. Unless compensated for in some other item, this will change the weight of the cloth as figured to finish the same width as the diameter of the machine.

Length of stitch will control the courses per inch and also the number of stitches per foot of yarn. Hence, any change in stitch length will affect the weight of the fabric.

General procedure for calculating the weight of fabric is to multiply wales per inch by courses per inch to obtain stitches per square inch. This quantity divided by stitches per foot of yarn is equal to number of feet of yarn in a square inch of fabric.

For example, assume a fabric with 48 courses per in., and 120 stitches per ft. of yarn of 150 den., to be finished with 40 wales per in., or slightly more than 26 in wide.

Weight of the fabric is determined as follows:

(40 $\times$ 48 $\times$ 36 $\times$ 36) $\div$ (120 $\times$ 3 $\times$ 29,760) = 0.2325 lb. per sq. yd.

1 $\div$ 0.2325 = 4.3 sq. yd. per lb.

The quantity 36 $\times$ 36 in the dividend represents the number of square inches in a square yard. The quantity 3 in the divisor represents the number of feet per yard, and the quantity 29,760 represents the number of yards of 150-den. rayon per lb.

A 2x2-in. sample cut from this fabric weighed 5.04 grains. This weight converted to pounds per square yard gave a weight of:

(5.04 $\times$ 36 $\times$ 36) $\div$ (4 $\times$ 7,000) = 0.2325 lb. per sq. yd.

This checks with the precalculated weight.

The accompanying table shows conditions for various sizes of machines and fabric weights precalculated by use of the modified Tompkins formula. Total needles in the various diameters are taken from standard tables.

Note that, because fabrics are finished at widths different from the machine diameters, there are differences in the wales per in. For diameters up to and including 24 in., tubing is finished 2 in. wider than the machine diameters, while for 26-in. diameter the tubing is finished only 1 in. wider, and for 28-in. diameter it is finished the same width as the machine diameter. Another reason why the wales per inch vary so much is that 2 in. added to an 11-in. tubing is relatively more than 2 in. added to a 20-in. tubing.

PRECALCULATED FABRIC WEIGHTS

28- Cut Machine — 150-Denier Yarn — Plain Stitch

Diameter	11″	12″	13″	14″	15″	16″	17″	18″	19″	20″	21″	22″	23″	24″	26″	28″
Total Needles	960	1056	1140	1236	1320	1404	1500	1572	1680	1764	1848	1932	2016	2100	2296	2460
Cloth Width	26″	28″	30″	32″	34″	36″	38″	40″	42″	44″	46″	48″	50″	52″	54″	56″
Wales per in.	37.0	37.7	38.0	38.6	38.8	39.0	39.4	39.3	40.0	40.1	40.2	40.3	40.3	40.4	42.5	43.9
Courses per in.	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
Stitches per ft. of yarn	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
Lb. per sq. yd.	0.1790	0.1823	0.1840	0.1868	0.1878	0.1887	0.1907	0.1902	0.1934	0.1941	0.1945	0.1950	0.1950	0.1953	0.2058	0.2120
Sq. yd. per lb.	5.59	5.49	5.44	5.36	5.33	5.30	5.25	5.26	5.18	5.15	5.15	5.13	5.13	5.13	4.86	4.72

QUESTIONS & ANSWERS

Holes in Full-Fashioned Hosiery

Technical Editor:

We have had a number of stockings returned to us with a break similar to the inclosed sample. If it is at all possible for you to give us any idea how you think this break occurred, we shall greatly appreciate it. (8593)

The hole in the stocking was undoubtedly caused by a slip in a knot in the silk; probably a throwster's knot. One of the loose ends still carriers the loop of the knot. Our reason for believing the knot is a throwster's or winder's knot is due to the fact that the break appears in about the middle of the pattern. It is usually the custom of full-fashioned knitters, where knots are tied, to introduce such knots in the selvage, and ordinarily yarn introduced by the knitter is not tied.

Similar trouble frequently develops from careless handling of hosiery during manufacture. It can come from such conditions as knitters dropping welt bars or transfer bars on the pattern while it is being knit; or by careless handling at the looping and seaming tables, where shears and other implements used around these operations may be carelessly thrown against stockings. This may produce a condition in which a major portion of the filaments in the yarn are broken, but sufficient strength remains to carry on through the dyeing and finishing operations, and to pass inspection in the finished goods. This condition is possible where the gray goods are not inspected on expanding forms which produce sufficient stress at all points to break any weak places.

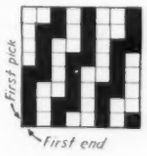
Construction of Irish Frieze

Technical Editor:

I am submitting to you herewith a sample of cloth. I should like to know the number of harnesses and the chain draft used to make this fabric. As we are going to brush the cloth I would very much appreciate it if you could give me a few points on this; also your opinion as to the best kind of brush for this purpose. (8554)

The cloth submitted resembles very closely the well-known and once-popular Irish frieze. The following manufacturing data, will, we believe, give a very close approximation of the fabric in question:

Construction: 8-½ reed, two ends per dent, 82-½ in. wide in loom, 1400 ends, 18 picks per in. Yarns: warp and filling, 1.20 typp (¾ run, 4 cut). Weight: loom weight, 40.3 oz. and estimating loss during finishing of from 22 to 25%, the length shrinkage will be about 18 to 20%. The finished weight should be about 37 to 38 oz. and the finished width approximately 58 in. To facilitate length and width shrinkage during fulling it is essential that the raw material used in yarn manufacture possess a sufficiency of felting property; otherwise, difficulty will be experienced in obtaining the necessary "bottom" or surface cover.



Weave: four up, four down steep twill, as illustrated, on eight harnesses.

Finishing routine: Full to 59 or 60 in. wide, to lose about 7 in. to the yard in length; scour, dry, brush, and shear off long and loose straggling fibers. A double-action brushing machine should be used, with a steam box in front and the usual folding equipment in back. While passing over the steam box the piece is subjected to a steady stream of live steam which has the effect of softening fibers and making them easier to disentangle and straighten out. Thus, the action of the brushes is made more effective. This operation should be repeated until a sufficiency of cover and uniformity of density has been obtained.

Considering the matted appearance of the cloth after fulling, and its general felt-like characteristics, we believe a few runs on a double-acting napper, in the wet state, would prove more effective and be no more costly than the brushing operation. Unquestionably, a more uniform and more dense cover would result, and after leveling on a shear the general appearance and finish of the fabric would be materially enhanced. However, it is altogether possible the brushing operation as suggested may prove sufficient for your present requirements.

Sizing Linen Yarn

Technical Editor:

We are sending you herewith a sample of a linen yarn we are using in hand weaving. We find it impossible to weave this yarn at any setting without sizing the warp. The fabrics are desized by washing in hot water. Will you please suggest a good method for both the sizing and desizing? (8605)

Possibly the production on hand looms would be small enough that the yarn could be purchased in skeins and skein-sized before warping. We would recommend a size composed of 100 gal. of water, 50 lb. of a thin-boiling starch, and 3 lb. of a good tallow-base softener. Cook this starch about 1 hr., work the skeins in it, hydro-extract them fully, and hang up to dry. During the drying operation, the skeins should be turned at frequent intervals so they will not become unduly stiff at either the top or bottom.

As concerns desizing after weaving, washing in hot water will take out the size, but the use of 3% of a diastatic enzyme solution will desize the yarn far more rapidly. The enzyme solution should be kept at about 145 to 150°F., and the skeins worked in this solution for 1 to 2 hr., then washed in warm water. Using this method, practically all of the size will disappear.

Streaky Filling

Technical Editor:

I would like to know what causes such a big difference in the attached piece of cloth after it is finished.

The warp is raw silk, 2 thread 20-22 den. and the filling is Bemberg rayon, 100 den. One quill seems to stretch, while the other does not. Tension in my shuttles is the same and my quilling is about the same too. (8502)

The selvage on the sample submitted discloses the fact that the rayon on one quill has been elongated practically to its limit. Elimination of this defect requires great effort.

There are a few mills which changed their looms to the running of but one shuttle in order to make less noticeable such a streaky appearance in the finished cloth. A plain weave for the selvage was used.

Careful inspection of quilling machines may be of benefit, since a dragging tension can cause the defect. The overhead-tension type, running direct from the cone, is by far the most ideal type of quilling for yarn of this nature.

Since we do not know the type quill in use, it is difficult to give definite instructions, as each type and size requires different handling. However, a few suggestions may be of help in eliminating the defect at the loom. Fur the top and bottom of

each side of the shuttle, leaving the center free. If the shuttle is of the ring-type tension, remove the two tension pins next to the bead inside the shuttle tension. Run the filling directly out the front, avoiding the top bead if possible. Should the yarn come out too freely, place a strip of fur through the tension rings, fastening the fur at the back of the ring.

The yarn must have a free, easy tension at all times. The least amount of drag, or a jerky movement, will cause shiners or a streaky weave.

Repairing Pile-Fabric Imperfections

Technical Editor:

How can we cut down the percentage of seconds in our pile fabrics, and how repair those imperfections which are present? (8524)

In weaving pile fabrics it is impossible to produce all perfect pieces. Proper inspection of fabrics is one of the most important matters in connection with the operation of a cloth room. Every piece should be examined in order to detect faults and trace them to their source, whether it be the weaver or some other operative. Some faults in the cloth cannot be attributed to the weaver; for example, wrong drafts in the drawing-in-room or unsuitable or defective yarn produced in the spinning room.

Fortunately, most pile-fabric imperfections can be repaired by a very simple process. Cloth should be examined as it comes from the loom, and the bad places marked on the selvage. These imperfect pieces are then sent to the menders, and ends that are out are sewn in. A good method to use in sewing in pile ends is as follows:

A small round wire is laid on the cloth at the place at which the end is out and the repair end sewn over it. After sewing, the wire is pulled out; loops are then cut with small scissors.

If a fabric is too bad to be repaired, the piece is cut in two and the imperfect part cut out. The two pieces are then sewn together and the cut marked "two pieces."

Cloths that are woven for embossing, crushing, or caracul-cloth for coats do not require extensive repairing, inasmuch as the pile is distributed into patterns and imperfections are covered.

The finished cloth should be re-examined, and at each bad place a string, of different color from the cloth, tied to the selvage. Allowances should be made on the basis of the number of strings per cut.

Backfilling Cotton Fabric

Technical Editor:

Inclosed are two sample pieces of a lightweight fabric, with similar finishes. If you will examine them closely, you will find No. 1 has been starched on mangle and has loading on both sides. No. 2 evidently has been backfilled. Both are the same gray fabric. It would be appreciated if you could give us any ideas you may have on duplicating the finish on No. 2, and also describe the machine necessary for so doing. (8573)

As a general rule, these materials come out of the bleach house and are range finished, where large quantities are to be produced at one operation. The range consists of a scutcher; preferably, a five-roll water mangle; followed by twelve to sixteen drying cylinders to preheat and almost dry the fabric, so that it is more receptive to filling; and a regular Tommy Dodd or backfilling mangle. Immediately following the Tommy Dodd, the fabric should go onto a sectional drying machine with a combination of steam-heated and water-cooled cylinders, with the water-cooled cylinders touching the filled side. Usually about 16 to 20 cylinders are sufficient, with about five of the cylinders water-cooled. From this dryer the fabric goes onto a 30 or 40-ft. tenter to regulate the width, and from there to the final drying section, which should consist of about 30 to 40 cylinders.

At the end of the dryer the goods can either be folded down or put through a conditioning unit and wound on rolls with a special cut-off type winder, ready for calendering. The calendering should be done on a five-or six-roll machine with fairly heavy pressure. If proper conditioning equipment is available, so that fabric is correctly cooled and conditioned as it leaves the final dryer, it is feasible to run the calender in range with the rest of the starching and finishing equipment.

There are two important details to take into consideration when finishing over a range as mentioned above. First of all, it is assumed that the gray width of the fabric is between 5% and 10% greater than the finished width requirements. In other words, for 35½ to 36 in. finished width, gray goods should be between 38½ and 39½ in. wide. Finishes of this type cannot very well be produced on hot-air housed 90-ft. tenters.

Expanders will be required at the water mangle, the Tommy Dodd, and on the drying sections to keep the goods out to width and eliminate wrinkles or scrimps.

It should be possible to produce 80 to 100 yd. per min. of backfilled fabric on the range described above.

The following sizing recipe is suggested as a basis from which to start: 40 lb. white corn dextrin, 40 lb. wheat starch, 40 lb. potato starch, 60 lb. China clay, 40 lb. mineral white or talc, 5 lb. wax emulsion, 30 to 40 lb. soluble tallow softener, blue to shade, and ½ pt. formaldehyde.

The above mix is to make 100 gal. when cooked for approximately 10 min. at the boil. While China clay and mineral white will give the best results, they may be considered too expensive for the price which can be obtained for finishing. Some of the concerns offering sizing materials may be able to recommend other fillers which are cheaper and which will be satisfactory if they can be bound into the mixture so as not to dust out when the fabric is being folded or made up.

Strawberry Stitch In Hosiery

Technical Editor:

We shall appreciate your advising us as to possible causes of the marks on the welt of the inclosed stocking.

This particular number, a four-thread, 42-gage, ringless stocking, knit on full-needle bar with six-thread, ten-turn welt, and four-thread, ten-turn boot, has been finishing nicely and with a minimum of sleaziness until a few days ago. Almost overnight, a great deal of sleaze, and the diagonal marks you will note in the welt, appeared.

We are pre-scouring dye lots of this number with a solvent to remove surplus oil which we have been getting in some of the fabric. Tests show that when we do not pre-scour the goods the marks are not so apparent, but are still present in such degree as to be very undesirable. Other than for the pre-scouring, the treatment of the goods in the dye house is routine. (8619)

The diagonal marks on the stocking welt are undoubtedly "strawberry stitch," which is a checkered pattern of long and short sitches that sometimes appears in long-stitch knitting in irregular diagonal blocks. It shows very clearly at the knitting machine and should be corrected there, as imperfections of stitch can never be entirely removed by subsequent processing.

It is obvious that the looser the fabric, the more easily it will return to its original shape during exposure to the moisture in the air after the finishing processes. Also, the longer the stitch, the more it may twist when the sinker wales pass from the end of the sinker nibs through the open space to the knocking-over beds; therefore the knocking-over beds should be set high for the welt and shifted for the finer thread of the leg. Most modern machines have two heights of knocking-over beds,

with adjustable bits in one set of cams.

The welt of the stocking submitted shows a decided washboard effect, every other course being a longer stitch. This trouble is caused by a faulty or twisted slur-cock. A method for the setting of slur-cocks was described in the July, 1935, issue of TEXTILE WORLD, in an article on "Washboard."

Two-Tone Effect in Double Cloth

Technical Editor:

Inclosed are two samples of a double cloth I produced. As you will note, the navy blue face on both samples has a red cast from the back. The back doesn't have a perfect cover either; it shows navy blue.

I used the regular 4 harness cashmere twill on face of both samples. Sample "A" has a 2-and-2 basket-weave back, and sample "B" has a 4-harness cashmere twill on the back. Both fabrics are joined with an 8-harness satin weave. I would appreciate very much your examining the two samples and telling me why they do not cover perfectly. (8512)

When two contrasting shades are employed for the grounds of face and back, the ordinary double cloth weave is not suitable. The reason for this is that the strong contrast of colors used, and the fibrous nature of the yarn employed, prevents the succeeding finishing operations from completely concealing stitching points. Unless properly guarded against by adequate construction and limited finishing processes, the surface fibers of the yarn will penetrate to the face and back respectively.

We recommend using a weave which is centerwarp stitched and arranged 1 face, 1 back, 1 stitcher, 1 face, 1 back. The two-and-two twill is used for back and face, and corresponds with Sample *B*. Stitching yarns should be of a finer count than ground yarns. These ends lie between the two cloths except where tying occurs and at such points are completely covered by adjacent floats.

The construction of this cloth was also not conducive to good results. The finished ratio of ends and picks is 48:32, indicating an excess of 8 ends in the warp, face and back, over the picks—an unbalanced condition. This results in the back stitching points being insufficiently covered and accounts for the much coarser general appearance of the back as compared with the face. When the same weave and counts of yarn are employed for back and face, square setting should always be practised.

In conjunction with the weave suggested, using the same yarns as in samples submitted, a suitable construction would be as follows: 8 reed, 5 ends per dent, 70 in. wide, and 36 to 38 picks. We do not advocate excessive loom widths but prefer firmer setting in the loom. This helps to reduce wet finishing time.

Streaks in Ribbon

Technical Editor:

We are inclosing a sample of ribbon which, as you will note, has a defect running the entire length. We will greatly appreciate your opinion as to the cause of this defect. (8614)

Examination of the fabric in question indicates that there is no fault in the reeding, drawing-in, weave, or construction. However, it appears that in the streaked area there is a variation in the yarn as to number of filaments. It is our opinion that this defect has been caused by mixed yarn, and also by the fact that the dye used has not penetrated properly in the streaked portion.

Loose vs. Tight Reed

Technical Editor:

Which is the proper way to run a reed, tight or loose, on a late-model Crompton and Knowles automatic shuttle-changing loom, with a steel beam and automatic let-off? (8509)

Tight reeds have many advantages, and on the type loom in question will be found far superior. These reeds allow a lower shed, as the shuttle has better clearance than on a loose reed. With tight reeds, perfect alignment of the reed with the shuttle box can be kept from start to finish of a warp, and it is absolutely necessary that the reed be in perfect line on a shuttle-changing loom.

Sometimes, after weeks in operation, one or more shuttles will become slightly more worn than others in operation in the same loom. These shuttles will be easier to drive across the race plate and may rebound a trifle; the loomfixer will tighten the boxes to take care of the rebound, with the result the slightly wider shuttle will stick in the boxes and cause the loom to bang off. Most of this trouble can be avoided by use of a tight reed.

Lint from yarn being woven often falls down between the reed and reed bed. This in time collects into small balls and lumps. As the reed swings back on the beat-up of the pick, the lumps are likely to fall down in front of the reed bed, keeping the reed from coming back into its correct position. The result is that reed and shuttle box become out of line. A tight reed eliminates this trouble.

A very good fix on a loom is the placing of small steel blocks, of ¼ in. stock. 3-in. x 1½ in., in back of the reed bed on each side. A hole drilled in one end of each block fits over the end of the bolt which runs through to the lay sword, securing it to the lay. Bend the steel block to form a tight fit, with one end placed in back of the reed bed to make sure the reed is secure. On a wide shuttle-changer, place an extra block in the center of the loom, in back of the reed bed, so the reed will not give at this point. This prevents production of cloth having a slight bow.

Worsted Knitting Yarn Waste

Technical Editor:

What is considered a reasonable amount of waste in the various departments of manufacturing worsted knitting yarns, from the top in the drawing to the finished yarn, shipped on cones or skeins? Assuming, for example, that we take 1,000 lb. of high ¼-blood top, white in oil, and make it into 2-20s knitting twist, with a spindle speed in the spinning of 5,000 r.p.m., what would be reasonable percentages of soft waste, fly sweeps, rubber waste, and invisible loss (if any) in the drawing, spinning, twisting, and coning or reeling departments. (8533)

As there are many factors governing the making of waste, any percentages given can only be considered as estimates. However, the following are, we believe, reasonable averages:

Top to Drawing	1,000 lb.	
Soft waste	50	5.00%
Fly waste	50	.50%
Total		5.5%
Stock to Roving	945.00 lb.	
Soft waste	9.45	1.00%
Fly waste	4.72	.50%
Total		1.5%
Roving to Spinning	930.83 lb.	
Soft waste	6.50	.70%
Fly waste	5.60	.60%
Hard waste	1.80	.20%
Total		1.5%
Reeling or Coning	916.93 lb.	
Hard waste	1.40	.15%
Fly and other loss.	.46	.05%
Total		.2%
Stock yield in finished yarn	915 lb.	91.50%
Loss in wastes.....	85 lb.	8.50%

The spinning spindle speed of 5,000 r.p.m. is a good average for cap spinning, and if all other factors are in this proportion, good results should be obtained.

COTTON SECTION—*Chapter VI*

By IVAR MOBERG

Picking Motions

PICKING MOTIONS in use at present are of two types. The cone picking motion is, as a rule, used in cotton weaving, but the batwing motion finds use on wide looms. The cone motion has a rotating cam for displacement of the cone-shaped picking ball, while the batwing motion has a rotating picking ball for displacement of the picking cam.

The cone picking motion may have a horizontal picking shaft, above or below the picking cam; or, although rarely seen in this country, a vertical picking shaft behind the picking cam. Fig. C55 shows a diagrammatic view of a cone picking motion with the picking shaft located above the picking cam. This arrangement is used on the great majority of cotton looms.

The modern picking cam consists of three parts: the cam hub, the cam, and the point. Each part is individually replaceable; the cam hub is split to facilitate replacement and the cam itself is adjustably bolted to the hub.

The most important factor in obtaining a smooth and gentle pick is the picking curve on the cam point. This curve is designed to give constant acceleration of the picker, which is started slowly but increases in speed up to the finish of the pick. This is necessary in order that the shuttle may start its movement gently, and to prevent the shuttle from leaving the picker before the finish of the pick. The curve of the cam point should not be altered, either by grinding or building up, since it is difficult to maintain proper acceleration once the cam point has been tampered with.

TO SET AND TIME the picking motion, first adjust the height of the picker shaft so that the picking ball will contact the entire surface of the cam face. Make sure the shaft turns freely in its bearing, but without any end play. Pay particular attention to checking the picking ball for free movement.

Loosen the bolts which hold the cam in the hub, and turn the adjusting screw until the cam is one-fourth of the way forward in the slots. Tighten the bolts with the cam in this position.

Turn the loom over until the cranks of the crankshaft are on top center. Position the cam point directly underneath the picking ball and move the cam hub laterally on the camshaft until the picking ball extends $\frac{1}{8}$ in. over the cam face. (On looms designed with the cam hub going up against the camshaft bearing, this lateral adjustment is unnecessary. In such cases, simply move the cam hub against the bearing.)

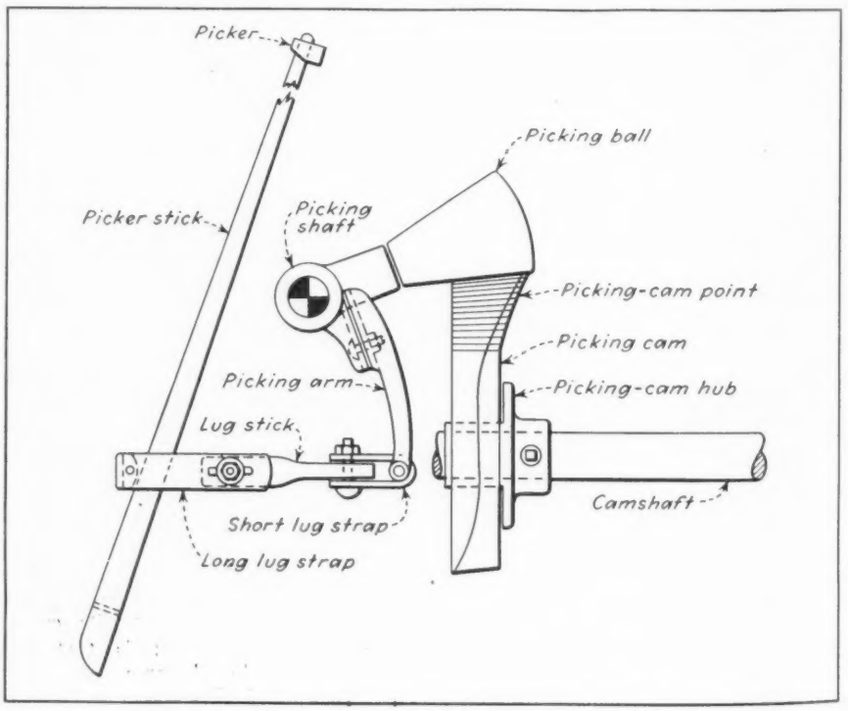
With the loom still in top-center position, and the lateral position of the cam hub undisturbed, turn the hub on the camshaft until the picking-cam point just begins to displace the picking ball. At this point tighten the setscrews in the cam hub.

On old looms, it may be found the setscrews in the cam hub have dug themselves deeply into the camshaft with the picking cam at the limit of the slots in the hub. On such looms, it is better to leave the cam hub in this position and accomplish the setting just described by disengaging the driving gears and remeshing them a tooth or two to one side or the other. This applies also in cases in which the picking-cam hub is keyed to the camshaft.

Most picking shafts have stops which prevent the turning of the shaft more than a trifle beyond the point to which it is forced by the cam. The object of the stops is to prevent the picking shaft from turning so much that the picking-ball cover will strike against the loom frame, and to prevent the momentum of the picking shaft from being stopped by the picker-stick connection. It is therefore important to adjust the stops correctly.

A stop may be of the fixed type, in which case the length must be adjusted by grinding or filling the stop; or it may have an adjusting screw. The stop should be so adjusted that when the picking-cam point is directly underneath the picking ball, there is a clearance of the stop of $\frac{3}{32}$ to $\frac{1}{16}$ in. This will allow the picking ball to rise $\frac{3}{32}$ to $\frac{3}{16}$ in. above the point of the cam when the loom is running.

Place the picking arm so that the bolt by which it is held to the picking shaft comes approximately in the center of the bolt slot. Adjust the height of the power strap, which is shown in Fig. C56, so that it will suspend the long lug strap slightly above the level of the short lug strap. The long lug strap must never be below the level of the short lug strap, as this would tend to lift the picker stick



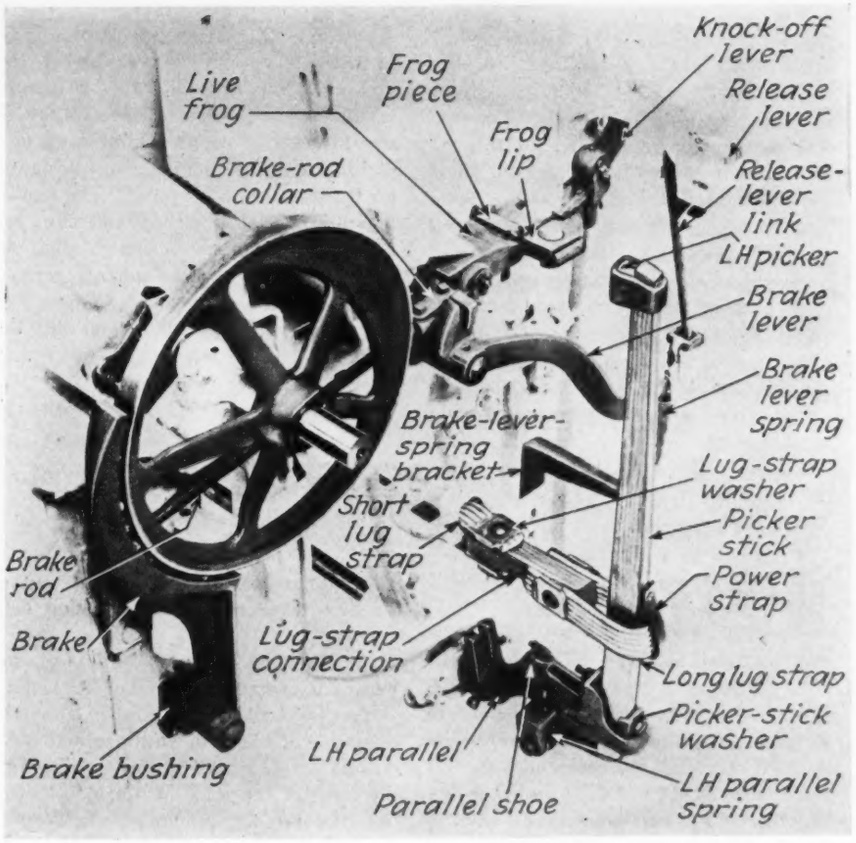
C55. Diagrammatic view of cone picking motion

at the pick. With the picking ball down on the lowest portion of the cam, and just before the pick, adjust the length of the lug straps so that there is approximately ½ in. of play between the end of the lug strap and the picker stick, when the latter is held against the lay end. Theoretically, there should not be any play at this point; practically, experience has proved that a small amount of play is desirable.

Turn the loom over until the picking ball rests directly on top of the picking-cam point, and note the length of the stroke of the picker stick. The length of stroke varies with different types and widths of looms: on narrow cotton looms, its range is from 7½ to 8 in.; on medium looms it varies from 8¼ to 8¾ in.; and on wide looms it ranges from 9 to 10½ in.

If the range of the stroke for a particular loom type is not known, it can be determined by moving the picker stick by hand until the shuttle is free of all binder pressure, then measuring the distance from the end of the picker-stick slot to the picker stick, while the stick is held in the position to which it was moved. This distance, plus ½ in., is the minimum length of stroke. To determine the maximum length of stroke, move the picker stick against the bunter at the end of the stroke, and measure the distance as above. This distance, minus ¾ in., is the maximum length of stroke, provided the bunter length is normal.

In any case, the stroke of the picker stick must not be so long that it brings the parallel shoe up on its toe, as this indicates that the stroke is beyond the capacity of the parallel motion. If, with the picking ball on the highest point of the picking cam, a drop wire can freely be placed between the toe of the parallel shoe and the parallel-motion stand, the capacity of the parallel motion has not been exceeded. This check should, of course, be made after the parallel motion has been adjusted.



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C56. Parts involved in setting and timing of picking motion

WHEN INSTALLING PICKERS, first place a shuttle in the shuttle box and ascertain that the shuttle-point contacts the picker stick exactly in the center. Adjust the box front and binder, if necessary, to put the shuttle in correct position.

Place the picker on the picker stick and drive it into approximate final position. Press the shuttle down on to the box floor, and push it up against the picker with the picker stick in normal position. Adjust the picker on the picker stick so that the hole in the picker centers over the shuttle point. Move the picker stick forward and make sure that, when the shuttle point is forced into the hole in the picker, the hole in the picker raises the end of the shuttle about 3/32 in. from the box floor. This slight rise of the picker at the end of the stroke allows for the bending of the picker stick at the pick, which otherwise would cause the picker to drop slightly below the point of the shuttle.

If, when the picker stick is moved forward, it is found the picker drops down so that the picker hole is lower than the point of the shuttle, loosen the picker-stick bolt slightly and screw the adjusting screw farther into the parallel shoe, until the proper 3/32 in. rise is obtained. If the picker is too high at the end of the stroke, unscrew the adjusting screw in the parallel shoe and tighten up on the picker-stick bolt, until the proper rise is obtained. When the picker is properly adjusted, insert the picker screw to hold it in place. Then turn the loom over one pick and repeat the operation on the other side of the loom.

In driving new pickers on to picker sticks make sure they are started correctly; otherwise they may be drawn into an angle with the picker stick, and it is almost impossible to straighten the picker after it once has taken an angular position. The back of the picker stick should be well rounded, so as to give the picker loop a chance to turn on the stick and give the picker more freedom to go straight.

Adjust the tension of the parallel spring so that it will have just enough strength to pull the picker back after the pick.

Now apply power, and turn the loom over one pick at a time. Place the free hand on the reed cap; with practice it is possible for a loomfixer to tell by the vibration of the loom whether or not the picking is nearly correct. When this fact is determined, the final fine adjustment and timing of the motion can be made.

Turn the loom to top center, and make sure the picking is timed so that the picker stick will start to move for the pick at this point. (In certain cases, best picking is obtained if it starts slightly later than top center.) Continue to turn the loom forward until the picking ball is on the tip of the picking-cam point, then check the stroke of the picker stick. If it is too long, shorten the picking arm and raise the lug strap on the picker stick. If the stroke is too short, lengthen the picking arm and drop the lug strap. After either of these two adjustments the length of the lug strap must be readjusted to maintain the ½ in. play between the picker stick and the end of the lug strap.

If, when the loom is started, it is found to have too powerful picking, raise the lug strap on the picker stick until proper force is obtained. Shorten-

ing of the picking arm will have the same effect, but guard against any upward pull of the picker-stick connection. It is better to run with as short a picking arm as is possible, for this reduces the torsion of the picking shaft during picking. Of course, with a short picking arm, additional strain is placed on the picker stick, since the loom will be running with low lug straps. But, if good picking sticks are used, they will stand up under the slight additional bending during picking which is due to the low lug straps.

Sometimes loomfixers move the picking cam farther in on the picking cone in order to get greater velocity on the picker. While this will give a greater velocity, due to decreased leverage, it should never be resorted to unless a new picking cone or picking cam, designed for this condition, is applied. The reason for this is that the cone and cam are designed to run on a certain plan, in which the cone makes perfect contact across the face of the cam; altering this plan causes the cone to contact only the edges of the cam face, and this is a very poor mechanical condition.

[Mr. Albert Palmer, of Crompton & Knowles Loom Works, has pointed out that in paragraph 4 of the May installment of the Cotton Section of the Loomfixers' Manual the allowance of ½ in. should be added to the 3-in. lift before the computation is made. Then, 11:26:: 3.5:X, and X = 8.3 in. This means that the double crank must be given a throw of 8.3 in. in order to lift the harness 3 in. This throw can be obtained by moving the wristpin until its center is 4⅛ in. (half the distance of the required throw) from the center of the camshaft. Mr. Moberg's discussion of picking motions will be continued.—*Editor*]

WOOL SECTION—*Chapter VIII*

By BENJAMIN F. HAYES

Picking Motions

THE PICKING MOTION is perhaps the most expensive part of a loom; hence, everything should be done to keep it in proper working condition, without repairs or replacements, for long periods of time. The most important factor for any loomfixer to keep in mind when setting or adjusting any part of the picking motion is permanency. Every attention to picking shoes, balls, stands, etc., as well as to pickers, picker sticks and straps, power sticks and straps, sweep sticks and straps, etc., should be with this in mind.

One thing necessary to achieve this desirable long life is to set picking motions so that the balls will contact the shoes over the entire area which is designed for such contact. Not infrequently it is found that picking balls are striking shoes only after the balls have come to within about 2 in. of the top part of the picking shoes. Such misadjustment results in the top part of the shoe soon becoming worn flat, thus rendering it useless.

Old-type looms, with driving gears on only one end of the crank- and picking-shafts, are timed by simply turning the loom to top center and adjusting so that the picker stick just starts to move when the top-center position is reached. Also, make sure the ball centers with the wearing part of the shoe.

In some instances, for example on looms of not more than 72-in. reed space, on those which operate at high speeds, and on those which operate with jump boxes, it is better to adjust the motion so that the movement of the picking stick will begin about one crankshaft-gear tooth after top center.

MODERN LOOMS have gears on both ends of crank- and bottom shafts, and the gears are adjustable; therefore, it is not necessary to lift them out of mesh to time the picking motion with the lay.

As the loom is turned so that the lay moves backward, the picker stick must come forward sufficiently so that the picker will come to within about 3 in. of the inside end of the picker spindle by the time the stick has finished its forward movement. Since there is likely to be some difference of opinion as to whether the picker should move as far forward as indicated in the above statement, it may be well to clarify the statement by a more detailed discussion of the operation of picking sticks and pickers. During the first part of its movement, a picking stick rubs against a picker at one point; and during the latter part, at a different point. The shorter the movement of the picking stick, the more nearly all of the energy applied to throw the shuttle will be applied while the picker and picking stick contact each other at only the first of these two points. This will tend to cause the picker to cut into the picking stick. If the grain of the stick runs in, even a slight cut will split the stick from the picker down; if the grain of the stick runs out, it will take the picker considerably longer to render the stick useless, but nevertheless the ultimate in permanent performance will not be obtained.

The more nearly equal the duration of the two areas of contact between picker and stick are, the longer both of them will wear. The long sweep recommended above will give this desirable equality of contact; hence, it will assist in prolonging the useful life of both pickers and picker sticks.

Of course, both pickers and picking sticks must be given some protection. On looms with drop-box pickers, use of picker-stick bunters will help protect the picker stick. Some loomfixers use cloth and leather loops for this purpose; some use only soft leather; some prefer rubber.

When reversible pickers are in use, packing on the picker spindle is the only form of protection which can be used. Rubber packing is not so rigid as leather, and will prolong the life of pickers and picking sticks.

After timing the lay with the picking motion, time all other motions to the lay. Boxes must have finished moving when the crankshaft reaches top center. Shedding must be accomplished as early as possible, to reduce the possibility of knot kinks on wide and heavy looms. The moving harnesses should have met each other by the time the lay reaches a point about 3 in. from the cloth, although on narrow looms it is not possible to shed quite so early.

PICKER COSTS sometimes amount to as much as one-half of total weave-room supply expense, and it is therefore important that serious, careful attention be given to them. Such attention should begin some time before the pickers are placed on looms. Every mill should have at least six months' supply of pickers on hand, so that the pickers will have time to become thoroughly seasoned before being put in use. They should first be soaked in neatsfoot or some similar oil for a reasonable period, and then hung up to drain for some time before being used. One manufacturer of pickers recommends that they be soaked in sperm oil for from 1 to 3 months, then drained for an equal length of time. The practice of soaking pickers increase the life of both pickers and picking sticks, and should be adopted by all mills. That the oil actually stays in the pickers is proved by the fact that, even if a picker is used for a year, the smell of the oil will still be with it when it is finally ready for replacement.

(Chapter VIII will be continued in an early issue.—*Editor*)

STAPLE COTTON FABRICS

By JOHN HOYE
Fabric Technician with W. Harris Thurston, New York

This forty-third installment of Mr. Hoye's series of articles on staple cotton fabrics—which began in the January, 1936, issue—concerns seat-cover fabrics and awning fabrics.

Seat-Cover Fabrics

Most seat-cover fabrics have small all-over designs made with dyed yarns. Background or ground-cloth warp and filling yarns are white with a gray or blue cast. A design of contrasting colored warp yarns is woven over the background. Colors usually are tan, blue, green, brown, etc. Also, except in the cheapest qualities, black yarns are used for contrast. These colored warp ends float in forming the design, so that they contract differently in weaving. Hence, it is necessary to use an extra warp beam for them. Better qualities of dobby-design seat-cover fabrics are made with ply yarns. Cheaper qualities, which are medium or light weight, are made with single yarns and in lighter construction. Also, they are given a firm starched finish to produce weight and stiffness.

For the better type seat covers, herringbone- and straight-twill whipcords are used. They are made with blue and tan ply warp yarns and black filling yarns, and sometimes are napped on the back to make them more bulky.

Another fabric which recently has come into use for higher priced seat covers, is sail cloth, a solid-color duck (usually with ply warp and filling—an army duck). It is piece dyed in royal blue, forest green, tobacco brown, and mulberry. When this fabric is made into seat covers, contrasting colored bindings are used. Wide Bedford cords, piece dyed in shades of dark tan, etc., also are used for high-quality covers.

One of the cheapest seat-cover fabrics made is woven with colored-yarn stripe effects and is firmly starched.

Seat-cover fabrics of a special type called "cotton-fiber fabrics" are woven with porous, loose twill, and fancy basket weaves, in attractive colors and designs. Usually, they are given a very stiff finish in addition to a water-repellent finish. They are similar in appearance to paper-yarn seat-cover fabrics.

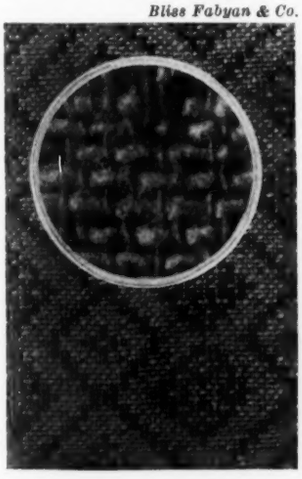
Seat-cover fabrics are used for covering seats, side panels, and doors of automobiles.

Warp and filling yarns: 12s to 20s single and 15/2 to 16/2 ply.

Examples of seat cover fabrics:

36 in. 74x40 3.50 yd. dobby design
56 in. 74x36 1.90 yd. dobby design
56 in. 76x38 1.40 yd. dobby design
56 in. 86x36 0.80 yd. dobby design, 2-ply warp and filling
56 in. 62x32 1.20 yd. herringbone twill, 2-ply warp and single-ply filling
36 in. 64x34 8.00 oz. whipcord
56 in. 48x28 2.40 yd. plain weave colored stripes
56 in. 56x28 0.90 yd. "cotton-fiber yarn fabric, fancy basket weave

Bliss Fabyan & Co.



Dobby-woven seat-cover fabric, 56 in., 76x38, 1.40 yd.

Awning Fabrics

Awning fabrics are strong, serviceable cloths with woven or painted stripes, usually made of carded yarns. A small quantity is made in solid colors. In the best qualities, ply yarns are used.

Woven-stripe awning fabrics usually are made in a duck construction with various colored-yarn stripes. Often, the cloth is finished with a mildew-retarding agent and preshrunk. The number of colors used ranges from 1 to 7. Several grades are made, each depends upon the weight of fabric and the color used. Woven-stripe fabrics, as a rule, are more expensive than painted-stripe fabrics, and, while they are less brilliant, they have fast colors and are always reversible.

Painted-stripe awning fabrics are standard constructions of army duck, single-filling flat ducks, and drills. Often, when army duck is used, it is piece dyed a mineral khaki or sulphur pearl-gray shade before it is painted. Drills and flat ducks are used in the gray state. Sometimes, a mildew-retarding finish is applied to the fabric before it is painted. Usually a filler is applied to the lighter weight drills before they are painted to give body to the cloth.

Stripes on one side of the fabric or both, in the same or in contrasting colors, are formed by applying oil paints by the flow method or by printing. Although as many as eight colors sometimes are used, generally from two to five colors are used. When army duck is used, stripes are painted exactly alike on both sides to give the appearance of colored-yarn woven stripes, and are referred to as duplex stripes. However, most painted-stripe awning fabrics have stripes only on the face. Sometimes, a stipple print effect or a light application of ink or paint is applied to the back of the fabric. In addition to giving an attractive appearance to the fabric, this will tend to hide any mildew or weather stains which might occur.

Awning fabrics are used for awnings, canopies, umbrellas, chairs, furniture coverings, hammocks, swings, and glider covers.

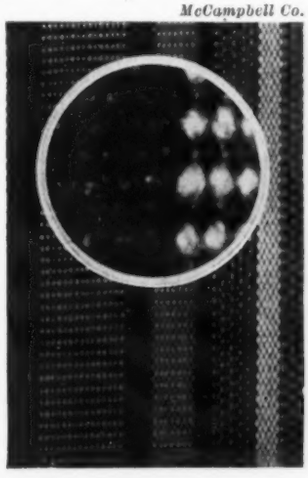
Examples of woven-stripe awning fabrics:

31 in. 65x36 10 oz.—12½/2 vat-dyed warp and 14½/2 mineral-dyed khaki filling
31 in. 57x44 8.00 oz.—14½/2 vat-dyed warp and 12/1 mineral-dyed khaki filling
31 in. 94x38 2.20 yd.—12½/1 sulphur-dyed warp and 11/1 unbleached filling

Examples of painted-stripe awning fabrics (army duck):

31 in. 52x40 8.70 oz., 14/2 warp and filling
32½ in. 52x40 9.12 oz., 14/2 warp and filling
32 in. 52x40 8.95 oz., 14/2 warp and filling

McCampbell Co.



Woven-stripe awning fabric, 31 in., 64x32, 10 oz., 2-ply, vat colors, preshrunk, 4 colors.

NEWS OF THE MONTH

Print Cloth Plan Approved

The recommendations recently made by the committee appointed to consider print-cloth production and its relation to present market conditions have been approved by manufacturers representing more than 95% of the looms on these fabrics, and the voluntary regulation plan has therefore gone into effect and will continue through September. Briefly the plan provides for (1) 25% reduction in output of the fabrics covered by the committee's recommendations during July, August and September and (2) limitation of sales to current production during this period, except as recommended by the committee.

The whole purpose of these recommendations is to reduce overproduction to the point where the present stock of goods can be absorbed in a reasonable time and the mill's customers be protected against the dumping of stocks on a weak market. Since the movement was inaugurated, there has been a substantial reduction in the volume of stocks in the hands of the mills, and the increase in retail and department store sales for the first five months of 1939 indicates that there is very little stock in the hands of converters and distributors. It is hoped that this movement on the part of mills to keep their production in line with demand will be continued, to the end that reasonable stabilization may be accomplished.

Barter and Subsidy

(From Our Washington Office)

Export of 6,600,000 bales of cotton is being planned by the Department of Agriculture. It is expected to subsidize exports of cotton to the extent that may be necessary to insure the shipment abroad of 6,000,000 bales. The additional 600,000 bales would move under the barter agreement with Great Britain, and would be impounded for a period of at least seven years should there be no war.

At the time of this writing the barter agreement has not been ratified and the agricultural appropriation bill has not been signed. It is regarded as practically certain, however, that the agreement will be ratified and that the President will sign the bill which carries funds intended for use in subsidizing cotton exports. With funds already on hand available for the purpose, it is expected that $60,000,000 can be made available for subsidies.

Resort to subsidies by the United States is expected to force an international agreement. The international conference at which this matter will be discussed will convene in Washington, Sept. 5.

The department also is actively preparing for a vigorous effort to expand the domestic consumption of cotton. The stamp plan for the purchase of surplus food products is reported to be working satisfactorily in the cities where it is being operated on an experimental basis. Extension of the plan to cotton goods is promised definitely.

Thistle and goldenrod silk chiffon in shades of Eleanor Blue which was designed for Mrs. Franklin D. Roosevelt to wear at Hyde Park during the royal visit. The print was designed by Miss Eleanor Roosevelt, niece of Mrs. Roosevelt and was executed especially for her by Frank Associated. (Design above about 1/3 true size).

Carrying Coals To Newcastle

If it were not so tragic, it would be downright silly—this raw cotton situation. The latest development is the importation of Brazilian cotton for use by American cotton mills, which, despite warehouses bulging with over 11,000,000 bales of loan cotton, face a shortage of spots.

Some 25,000 bales of Brazilian cotton are here and in process of manufacture. The cotton this year is, in some lots, well up to 1 1/8" in length, and compares favorably with American cotton in grade and character. It averages 1/2¢ less in price for same types as domestic staple. Some mills which have run tests on Brazilian cotton, like it; some classers say it is nice silky fiber. Considerable amounts are coming in for use in New England, in some few southern mills, and in some Canadian plants. Most of it, however, at this stage of the game, is for experimental purposes.

It is pointed out that the Brazilian cotton today is not Brazilian cotton of a few years ago; that a million dollars or more has been invested by a large American cotton company in erecting modern gins and making trading arrangements in Sao Paulo; and that this is the logical year for that company to begin international selling operations in Brazilian cotton.

Profitless Sales Can't Continue

Sound market opinion questions the ability of the cotton textile industry to continue the sacrificial performance of 1938, states W. Ray Bell, president of the Association of Cotton Textile Merchants of New York, in his statement accompanying the statistical study of "Ten Years of Cotton Textiles" for the decade ending Dec. 31, 1938. (This table was published in our last issue.)

"Without a reasonable margin of profit in its transactions," says Mr. Bell, "it cannot fulfill its national services in the consumption of American cotton, the employment of a large population, and the supply of essential products. Fortunately there is a growing recognition that restoration of confidence in market values is the keystone to a period of broader distribution."

Urges Change in Wage-Hour Law

The wage-hour law should be amended to eliminate industry committees and to eliminate administrative wage orders, stated George A. Sloan, former president of the Cotton-Textile Institute, in address before the Rotary Club, Nashville, Tenn., June 13.

"The varying ideas as to wage standards of different industry committees cannot but make for a severe disruption of the competitive balance between the many industries," he said. "But that isn't all. Having nine people or 29 people to sit in judgment on the minimum wage level to be set in one entire

industry covering practically all of the geographical divisions of the country, when that determination may destroy industry in one community which may not even be represented on the committee, is, in my opinion, unreasonable and unfair."

Wool Labeling Bill Before House

The Martin wool products labeling bill was placed on the House calendar late in June. It offers a still different nomenclature for wool from that used in the Schwartz bill which was introduced into the Senate. Fiber from the back of the sheep, never before used, it is proposed merely to call "wool." Fiber manufactured but never put to actual use is to be called "processed wool." Fiber reclaimed from articles which have been put to use is to be called "reused wool." Washington is still uncertain as to the likelihood of this legislation passing at the present session.

Now We Have the "Trossach"

A generic name for a fabric of viscose and acetate rayon and wool blended and dyed as a heather mixture has been advanced by the American Viscose Corp. "Trossach" is the name which has been filed with the Trade Mark Bureau of the National Federation of Textiles, to be available to anyone in the trade who wishes to use it to describe the type of fabric just mentioned. This is a step in line with a program which has been considered in many parts of the synthetic textile field for the adoption of distinctive names for new fabrics with rayon content. The best opinion in the industry is to prevent the existing names in the trade from being misused by false application to some of the newer fabrics. Thus the introduction of new names is helpful in avoiding confusion and misbranding of fabric types.

The particular fabric which has received the proposed generic name possesses a novel range of three-color effects because of the different dyeing characteristics of the three fibers involved. It takes its name from the heather-covered Trossach hills of Scotland.

FATHERS HAVE CHANGED TOO!
TODAY MEN CHOOSE KNITTED UNDERGARMENTS MADE OF
Durene
— they absorb and evaporate perspiration twice as fast as similar garments made of ordinary cotton yarn!
— the Secret of Keeping Cool and Comfortable!
Durene

Display card distributed by Durene Association to men's underwear departments of retail stores which carry underwear of Durene.

TEXTILE MILL SIDE-LIGHTS—NO. 7

"It's an idea of the new sales manager you hired, Mr. Bluggs!"

Rayon Spinning Spindles

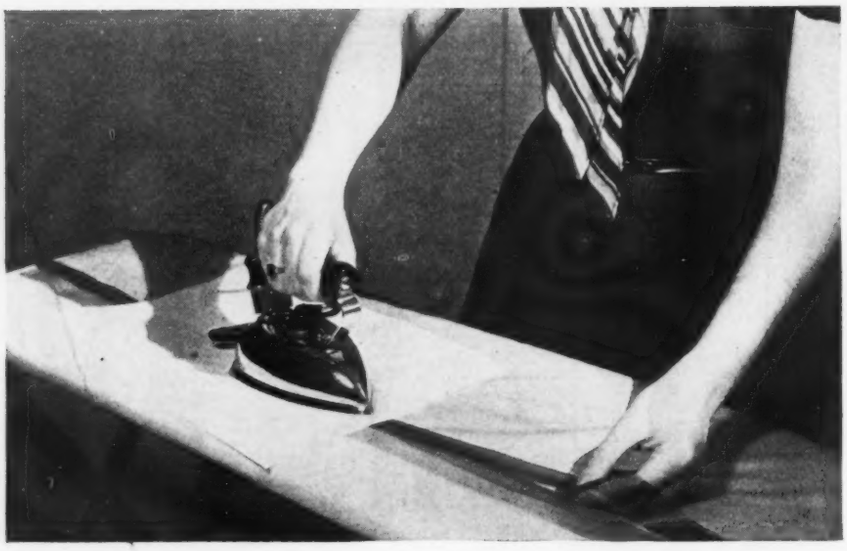
The Director of the Census announces that 432,366 spindles in cotton mills were operated on spinning rayon fiber only during the month of April, 1939, and 86,308 spindles on rayon fiber mixed with cotton. All of the cotton spinning mills were canvassed for the data. There were also upward of 100,000 spindles operating on rayon fiber in former cotton mills which have gone over entirely to the spinning of rayon. The 22,109,394 active cotton spindles for April are in addition to these 618,000 on rayon.

S. C. Manufacturers Elect

The officers elected at the recent annual convention of the Cotton Manufacturers Association of South Carolina include: President, M. P. Orr; executive vice-president and treasurer, W. P. Jacobs; second vice-president, W. S. Montgomery; general counsel, T. Frank Watkins. Directors include J. B. Harris, B. B. Gossett, George M. Wright, H. K. Hallett, C. E. Hatch, W. P. Hamrick, S. H. Swint, E. S. McKissick and James A. Chapman. Permanent honorary members are Capt. Ellison A. Smyth and J. E. Sirrine.

Apex Appeal Argued

The U. S. Circuit Court of Appeals for the Third Circuit at Philadelphia heard argument on June 19 affecting the appeal by Branch 1 of American Federation of Hosiery Workers from the damage verdict of $711,932 returned in favor of Apex Hosiery Co. in Federal District Court on April 3. The argument brought forward numerous interested groups on the labor side of the question, their principal contention being that a labor union cannot be



Iron Replaces Needle—"Sewing" with an iron is possible with fabrics that have been K-treated with a coating of Koroseal, a Goodrich product which, in addition to making fabrics waterproof, dustproof, and mothproof, gives them heat-sealing qualities. The making of seams and hems as well as the application of designs is thus simplified as the two surfaces adhere permanently.

prosecuted under the Sherman anti-trust act. Among these groups was the C.I.O., the American Civil Liberties Union, and the Textile Workers of America. Most of these groups appeared as "friends of the Court." After the hearing and the filing of briefs, no reasonable conjecture could be made as to what the decision of the Court of Appeals might be or when it would be handed down.

Committee D 13 Reports on Activities

Activities of Committee D 13 during the last year were summarized in a report presented at the annual meeting of the American Association for Testing Materials, held June 28, in Atlantic City, N. J. The report included the announcement of a new sub-committee on glass textiles, initiation of a research program on the evaluation of textile finishes, comprehensive methods of test for rayon staple, new test methods for jute yarn, and a procedure for measuring the fluidity of cellulose dispersions in cuprammonium hydroxide.

Honor Japanese

More than 300 guests representing fields of business associated with silk in the United States attended the dinner at the Waldorf-Astoria, New York, June 9, held by the National Association of Hosiery Manufacturers, Raw Silk Importers, Inc., and the International Silk Guild, to honor Eitaro Okamoto, vice-president of the Central Raw Silk Association of Japan, who was in this country to attend the New York and San Francisco Expositions. Paolino Gerli, president of the National Silk Guild, presided. Speakers included Earl Constantine, president of the National Association of Hosiery Manufacturers; T. Inuoye, commercial secretary of the Japanese Embassy, and Mr. Okamoto.

Carolina Yarn Men Hold Tournament

Carolina Yarn Association held its annual meeting at Charlotte (N. C.) Country Club May 18 when the following officers were elected for the ensuing year: president, S. L. Diggle, Dixie Mercerizing Co.; vice-president, Karl Ginter, Industrial Dyeing Corp.; treasurer, Penrhyn Wilson, R. K. Laros Silk Co.; secretary, H. T. Cosby, Cosby & Thomas. All these officers make their homes in Charlotte. After election of officers, a golf tournament was held and prizes won by Jack Holbrook, S. L. Diggle, H. T. Cosby, Bill Yates, P. H. Thompson, Fred Sails, John Sherrill and Fred Lemmond. Attendance prizes were awarded C. W. Causey, Jr., and Penrhyn Wilson.

TEXTILE CALENDAR

Southern Conference on Human Relations in Industry, Blue Ridge, N. C., July 13 to 15, 1939.

South Central Section A.A.T.C.C., annual summer outing, Lookout Mountain Hotel, Chattanooga, Tenn., August 4 and 5, 1939.

American Association of Textile Chemists & Colorists, annual meeting, Copley Plaza Hotel, Boston, Sept. 15 and 16, 1939.

National Safety Congress and Exposition, Atlantic City, N. J., Oct. 16 to 20, 1939.

17th Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 4 to 9, 1939.

Sixth International Heating and Ventilating Exposition, Lakeside Hall, Cleveland, Ohio, Jan. 22 to 26, 1940.

Operative Wins Golf Tournament

The Southern Textile Golf Tournament, in which mill officials, operating executives and operatives, as well as representatives of sales organizations took part, was played at the Carolina Golf Club, Charlotte, N. C., June 9 to 11, with 105 players (66 mill men and 39 salesmen) participating. The mill championship went to Harold Thomas, young winding room operative in the American Yarn & Processing Co. (Mt. Holly, N. C.) plant, with R. F. Baumgardner, loom fixer of the National Weaving Co. (Lowell, N. C.) as runner-up. In the salesmen's division, Ed Reid, Charlotte representative of Sonoco Products Co., defeated Brick Smith of the Shelby Supply Co. 1 up in the first flight.

In the Textile Markets

COTTON GOODS—The last week in June brought activity and strength to the gray goods market following the voluntary regulation plan adopted by manufacturers of print cloths. Substantial business was done on the basis of 4½¢ for 38½ in. 64x60s. Actually, however, business in sheetings outran print cloths, with particular interest in constructions for the bag trade. Combed yarn goods were steady with scattered interest. The fall outlook is improving for numerous cotton goods lines. Raw cotton moved to new high ground as June closed.

WOOL GOODS—Encouraging reports from retail centers are bringing better sentiment to wool fabrics on the threshold of spring 1940 openings. Summer weight specialties for men's wear are now being shown and the likelihood of good business is considered strong. With a very early Easter next year it seems likely that the spring season will be short, but that the summer season will be proportionately lengthened. Compared with a year ago prices will of course be advanced, possibly 5 to 10%.

RAYON FABRICS—The rayon fabric market took a turn for the better in June. There has been good demand for twills and serges, and looms are running overtime on these fabrics. There is

increase in unfilled orders on standard fabrics, and premiums are actually being paid for spot deliveries. Spun rayon novelties are in the ascendency. Among other lines prominent in greige goods are sheers and pigment rayon taffetas. Crepes and box-loom fabrics are reported quiet. For sample cuts of crush-resistant velvets, cutters are paying $1.35, but no minimum price has been set.

RAYON YARN—On June 19 American Bemberg Corp. announced advances on its cuprammonium yarns. The new list puts 40-denier no-twist skeins at $1.25, 75-denier at 85¢, 100-denier at 68¢ and 150-denier at 64¢. A few days later American Enka Corp. advanced quotations for its fine denier throwing cones by 1¢. The market is watching other quarters with attention particularly centered on the fine denier and acetate lines. The spun-rayon vogue continues with strength and is resulting in increased interest in abraded type yarn.

RAW SILK—Raw silk prices moved toward lower levels through June. On June 23 Crack XX (78%) was quoted at $2.45, a drop of about 7% from the beginning of the month. The price is still nearly 50% above what it was one year ago. Japanese authorities are said to be interested in stabilizing silk values at workable levels. The spring cocoon crop is estimated to be only 1.1% below a similar estimate made at this time last year for the 1938 spring crop. The estimate, however, is 7.2% below last year's actual crop.

HOSIERY—The industry was busy at the close of June figuring what basis should properly be set for branded lines of full-fashioned goods for the fall. The June 1 advance was only for nearer months. The decline in raw silk, although insufficient to help profit margins materially, has made some hosiery manufacturers doubt the advisability of any further rise at present. Such devices as use of rayon welts on silk hose are being used to retain some numbers in the lower price brackets.

UNDERWEAR—Underwear manufacturers became optimistic as June closed, over the prospects for the coming fall. There was a satisfactory gain in light weight business through the close of May and extending into June, which was taken as an indication not only of low stocks the distributors have but of public readiness to buy.

OUTERWEAR—With evidence that retail stores are being cleaned out of their summer lines of outerwear numbers, manufacturers are expecting a revival of buying interest in fall goods.

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This and That

Industrial Rayon Corp. has recently begun sales of graded-quality weaving yarn produced by a continuous spinning process in its new plant at Painesville, Ohio. Both bright and dull viscose-type yarns are available in sizes of 75- to 150-denier for warps and prepared for crepe throwing.

Four companies have announced the pooling of their patents relating to application of fluffy dots to marquisettes and other sheer fabrics. These companies are Mount Hope Finishing Co., Defiance Mfg. Co., Mansfield Bleachery, and Dodgeville Finishing Co.

The ringless hosiery controversy may be revived as the result of a new patent on three-carrier attachments assigned to Julius Kayser & Co. It is believed in the trade royalties will be required for use of the attachments covered in the patent.

Braided bead cord made of Nylon has been announced recently by J. W. W. Holden, Providence, R. I. The new cord is available on spools for the jewelry trade and in 72-in. lengths for package sale.

The Texas Legislature believes that in order to catch fish the hook must be baited. It offers a reward of $10,000 to anyone discovering a new use for cotton which will consume 300,000 bales annually. The presidents of Texas A & M College, Texas Technological College and University of Texas will determine which applicant is qualified for the award.

A "Trade Practice Hearing" before the Federal Trade Commission in Washington, D. C., covering proposed rules for the cotton converting industry will be held in Washington on July 17. Trade practice rules for the ribbon industry were promulgated June 28 by F. T. C.

Some like 'em hot, some like 'em cold! With spring and summer cotton festivals just out of the way, Greenville, S. C. and Clarksdale, Miss., announce week-long cotton festivals scheduled for fall production in those cities.

Celanese Corp. of America has recently licensed E. I. duPont de Nemours & Co. to produce abraded-filament yarn according to the methods controlled by the former company. It is believed in the trade that other rayon yarn producers will be granted similar licenses.

NEWS ABOUT MEN

Paul C. Debry has retired as chairman of the board of the Duplan Silk Corp., New York.

Thomas J. Mallon, formerly secretary and vice-president of Burlington Mills Corp., Greensboro, N. C., has been elected treasurer of the corporation succeeding **E. F. Addiss**, resigned.

George B. Adams, formerly vice-president of Everfast Fabrics, Inc., has been elected president to succeed the late **Ludolf Portung.**

B. B. Gossett, president, Chadwick-Hoskins Co., Charlotte, N. C., was awarded the honorary

B. B. GOSSETT

degree of Doctor of Textile Science at North Carolina State College, Raleigh, N. C., at the recent commencement exercises.

Louis Lowinson was guest of honor at a luncheon given by Textile Square Club at the Wool Club, New York, June 28. Many individuals prominent in the cotton cloth brokerage business were on hand to congratulate him on completing 50 years in business.

Wm. R. Rossmassler was re-elected president of Throwsters Research Institute on June 29. **Neil V. Butler** was re-elected vice-president; **Arthur G. Schautz**, treasurer; **George A. Urlaub**, executive director. **Henry J. Tynan**, in recognition of his service to the Institute, was elected an honorary member of the board of governors.

Albert A. Clune has resigned as treasurer of the National Federation of Textiles, New York. Mr. Clune, who has been active in credit work, states that he will announce his new plans in the fall.

M. P. Epstein, merchandise manager of the Industrial Rayon Corp., addressed a luncheon meeting of the Textile Square Club, New York, last month on the competitive relation between cotton and rayon. He differed from those who fear the incursion of rayon and pointed out that the year of largest rayon consumption in the recent past was also the year of largest cotton consumption. He also described the new continuous spinning process of Industrial Rayon.

Robert C. Stephenson has been elected president of the Baldwin Mfg. Co. with plants at Elk Mills, Md., and Newark, Del., to succeed **A. D. Stephenson**, his father, who recently resigned. **Arthur B. Van Gelder** is now advisory vice-president, succeeding **John Lawrence, Sr.**, and **John C. Stephenson** is secretary and treasurer. The executive offices of the company are in Philadelphia. This item corrects the report in these columns last month in which the name of the president was improperly given as Robert Stevens.

G. H. Mahaffee, formerly of Danville, Va., where he was a former salesman for the Slip-Not Belting Corp., has become overseer of carding and spinning at the Alexander, N. C., Mfg. Co.

R. W. Frambach, for 18 years assistant sales manager of Schwarzenbach-Huber Co., and for the last two years styler of printed shirtings for Pepperell Mfg. Co., New York, has recently been appointed director of styling for the latter corporation.

Howard Curtis, for the last four years with Massin Textile Corp., New York has joined H. M. Kolbe & Co., to head a newly established print goods department.

Peter D. Cooper has been named plant manager and **S. B. Roberts**, chief engineer, of the new plant now under construction near Pearisburg, Va., by Celanese Corp. of America.

Richard H. Bodine has been elected president of the Memphis Cotton Carnival Association. He is a former cotton man and heads the C. H. Bodine Lumber Co. founded by his father.

Roger M. Woolley became associated with the New York Office of the Gosnold Mills Corp. last month. He is assisting **Robert Burgess, Jr.**, New York selling agent.

J. C. Roberts, treasurer of Ridge Mills, Inc., Gastonia, N. C., has been elected commander of the Gaston Post No. 23 of the American Legion.

HONOR TEXTILE VETERAN—Harry Peterson of Bristol, R. I., 75-year-old veteran employe of Collins & Aikman Corp., receives congratulations of W. G. McCullough, president of the company, (left), and vice-president C. B. Rockwell. He has rounded out 60 years with the company and was dean of the 81 members of the company's Quarter-Century Club who went to New York recently for a three-day visit to the World's Fair.

Garnett Andrews, president of Richmond Hosiery Mills, Chattanooga, Tenn., and dean of the local hosiery industry, was guest of honor recently at a dinner given at Lookout Mountain Hotel by 26 men who hold important jobs in various quarters of the industry, and who obtained their first jobs under him. A gold watch and an oil portrait of himself were presented to Mr. Andrews, the presentation address being by **John M. Botts**, senior partner of Harrington & Waring, New York.

EITARO OKAMOTO, vice-president of the Central Raw Silk Association of Japan, who has been visiting in this country during the last two months, attending the World's Fair and making contacts with numerous groups associated with the import and use of raw silk.

F. S. Blanchard, of Pacific Mills, New York, will represent that company in the activities of the Association of National Advertisers, to membership in which Pacific was recently elected.

George A. Doscher, for the last six years with men's wear department of Botany Worsted Mills, New York, has resigned to become selling agent for the Merion Worsted Mills.

Ralph Dunford, of Scottville, N. Y., was nominated for president of the New York State Textile Overseers Association at the June 17 meeting and outing of that organization at Walen's Grove, near Ballston Spa, N. Y.

James F. Dewey, woolen manufacturer of Quechee, Vt., has been elected president of the Associated Industries of Vermont.

Frank Wharton, secretary of the Philadelphia Carpet & Upholstery Club, is completing arrangements for the annual outing of that body to be held July 13 at Kugler's old Mohican Farm on the Delaware.

Edward J. Nugent, manager of the New York office of Wamsutta Mills, has been elected treasurer of the Arkwright Club.

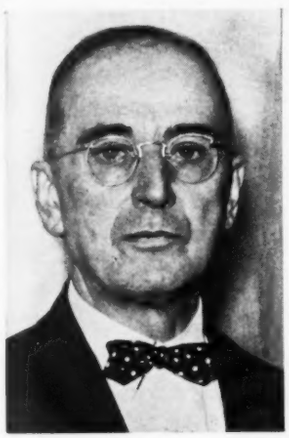
Earl **Constantine**, president of the National Association of Hosiery Manufacturers, was last month named president of Trade Association Executives in New York City. **Roy A. Cheney**, president of the Underwear Institute, was elected one of the vice-presidents.

Allan J. Mercher has become associated with Mill Associates, Inc., New York.

Z. F. Wright, president and treasurer of the Newberry, S. C., Cotton Mills, has been elected a member of the board of directors of the newly organized Newberry Chamber of Commerce.

P. P. Herman has become secretary and treasurer of the Star Hosiery Mills, Conover, N. C.

Frederick K. Nixon, who has been in charge of the merchan-



Courtesy "Daily News Record"
FRED K. NIXON

dising of the clothing division of Riverside & Dan River Cotton Mills, for the last several years, has been appointed general sales manager for that company, succeeding **George P. Ray**, who resigned because of ill health on July 1. Mr. Ray will continue as a vice-president and director of the company. Mr. Nixon has had many years experience in selling textiles as he was successively with the American Woolen Co., the U. S. Worsted Co. and Worumbo Mfg. Co.

C. F. Smith is president and treasurer of the Josephine Mills, Marion, N. C., formerly the Elizabeth James Hosiery Mill. Mr. Smith was formerly superintendent of the Elizabeth James plant before being taken over by the new interests.

Richard E. Reeves has resigned as secretary and assistant treasurer of Southeastern Cottons, Inc., to become associated with Reeves Bros., New York. **Howard M. Van Duyne** will hereafter direct the merchandising of Southeastern's drapery, curtain, slip-cover and auto-seat covering materials.

O. E. Steinbach, vice-president and general manager of Florence Mills, Forest City, N. C., has been made a member of the advisory committee of the Industrial Safety Conference of North Carolina.

C. E. McCaw, treasurer of the Cutter Mfg. Co., Rock Hill, S. C., has become office manager of the same company.

W. K. Mauney, Jr., secretary and treasurer of the Mauney Mills, Inc., Kings Mountain, N. C., has been elected treasurer of the Kings Mountain Lions Club.

Wilton W. Todd, manager of the Mollohon unit of The Kendall Co., Newberry, S. C., has been elected a member of the board of directors of the newly organized Newberry Chamber of Commerce.

H. P. Lineberger of Gastonia, N. C., has been appointed receiver for the Walker Mills, Inc., Gastonia.

Charles H. Merriman, Jr. has been elected president and treasurer of the Staunton (Va.) Woolen Mills, succeeding **George Musgrave. W. E. Johnson** was re-elected vice-president and **Giltin Willson, Jr.** was re-elected secretary.

John E. Bromley, Jr., of John Bromley & Sons, Inc., Philadelphia, is now acting president of the Philadelphia Textile Manufacturers Association, assuming that office upon the resignation of **Clarence L. Ederer**, of R. J. Ederer Thread Co., and will serve in that capacity until the next annual election.

Joseph Loper will operate the Hargraves Mill, West Buxton, Maine.

Dr. Frank K. Cameron, of the University of North Caroline Chemistry Department, has been awarded the Charles Herty medal for his successful experiments in developing more products from cotton. The medal is awarded annually.

Herbert E. Martin has been made assistant general manager of the plant of Celanese Corp. of America at Cumberland, Md.

Norman Routley, secretary of Bonds Industries, Ltd., of Australia, was the guest of **Mr.** and **Mrs. A. E. Scharrer**, of Hickory, N. C., while visiting the hosiery and textile mills in the Piedmont.

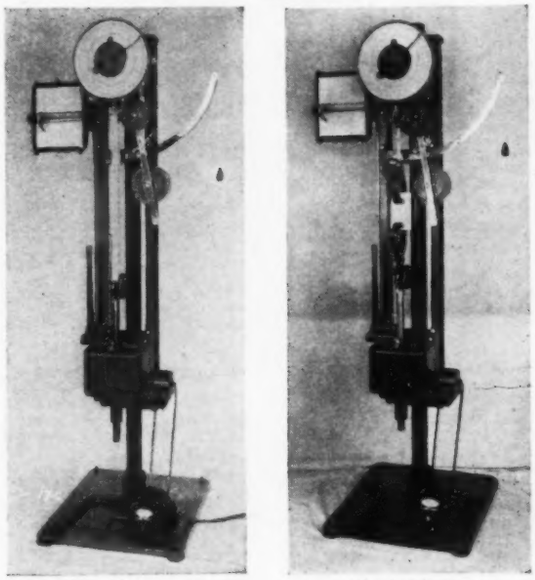
Albert J. Owler was elected to succeed **Arthur B. Barnes** as president of the Southern New England Textile Club at the annual meeting at Pomham Club, Riverside, R. I., June 17.

Waldo Sigmund, Holeproof Hosiery Co., was elected president of the Wisconsin Men's Apparel Golf Association June 8 at the annual party in the Merrill Hills clubhouse, Waukesha county.

R. B. Fuller, Sayles Biltmore Bleacheries, Inc., Biltmore, N. C.,

SCOTT TESTER MODEL J-2

Really two testers in one



Yarn Tester *Cloth Tester*

Both illustrations are of the same machine. The exchange in clamps is made without the use of tools, and with very little or no effort.

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Meets A.S.T.M. specifications

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CLINTON STARCHES

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CLINTON, IOWA

Quality « » Service

TAXES
YOU *Don't* HAVE TO PAY!

● **SPOILAGE**

Inability to obtain correct machine speeds to match skill of operators, kind of materials, etc., results in spoilage and rejects which tax production and profits.

● **LACK OF UNIFORMITY**

Constantly varying conditions, in mills and materials, prevent the same quality of production day after day unless machine speeds are variable, too.

● **RESTRICTED MACHINE OUTPUT**

Fixed speeds prevent a machine from handling different types of goods. When speeds are adjustable, work range is widened.

● **IMPAIRED QUALITY**

Quality is frequently lowered because inflexible machine speeds make it impossible to meet exact specifications.

● **WASTE OF TIME**

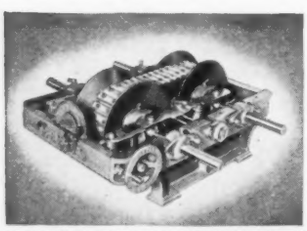
When the flow of goods from one process to another is interrupted by machines that are not in "step," time is wasted, and production suffers another unnecessary tax.

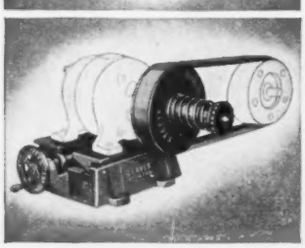
● **SCHEDULE FAILURES**

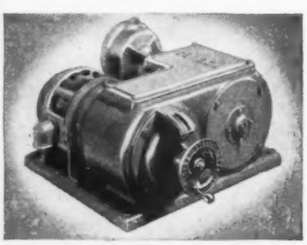
A one-speed machine will do just so much, and no more, regardless of work to be done. When each machine in the line can be speeded up in emergencies, schedule failures are eliminated.

All these "taxes" on production and profits are eliminated entirely or substantially reduced when machines are equipped with REEVES Speed Control, the textile industry's approved method for *accurate* speed adjustability. REEVES PULLEY CO., Dept. W, Columbus, Indiana.

THE 3 BASIC REEVES UNITS







● *Left:* Transmission provides infinite speed adjustability over wide range.

● *Below Left:* Vari-Speed Motor Pulley, simple, direct drive from fractional to 15 H.P.; 3:1 range.

● *Below Right:* Motodrive combines motor, speed varying mechanism and reduction gears.

Reeves SPEED CONTROL

and **H. R. Cory,** Beacon Mfg. Co., Swannanoa, N. C., were panel speakers at the Tenth Annual Industrial Safety Conference, Raleigh, N. C. Other speakers were **Robert McFarlane,** Sayles Biltmore Bleacheries, Inc., and **C. Vanderhooven,** American Enka Corp., Enka, N. C.

Herbert Smith and **Joe Smith,** of the Herbert Smith Co., Clover, S. C., will represent Adelphia Textile Co. in North Carolina. The firm will offer resist-dyed acetate, immunized cotton, block-dyed yarns, and covered rubber to the hosiery trade.

Hyman D. Rothkopf, of New Bedford, Mass., has been appointed to the Bureau of Economics in Department of Agriculture in Washington. He was graduated from New Bedford Textile School in 1936.

Thomas L. Norris was elected president of the New Bedford (Mass.) Textile School Alumni Association at the annual clambake and business meeting held in Fairhaven, Mass. **Eliot Borden** was elected vice-president; **Edward Murphy,** treasurer, and **Malcolm Richardson,** treasurer.

George C. Shuford, Cliffside (N. C.) Mills; **E. A. Smyth, 3rd.,** Balfour (N. C.) Mills, Inc.; **O. E. Steinbeck,** Florence Mills, Forest City, N. C.; **S. M. Fessenden,** Sayles Biltmore Bleacheries, Inc., Biltmore, N. C.; **C. Vanderhooven,** American Enka Corp., Enka, N. C., have been appointed on the North Carolina Industrial Safety Conference Advisory Committee.

Miss Ann Keay has become associated with Pacific Mills, New York, as stylist for the rayon women's wear division at that company's downtown office.

Miss Helen G. Hoffhine has been made stylist for the cotton women's wear division of Pacific Mills, New York. She has been with this organization in the styling and designing of fabrics for many years.

Albert Cooke, formerly with Charles T. Cochrane Co., Philadelphia, is now with the Beattie Manufacturing Co., Little Falls, N. J., as designer and stylist.

Miss Lenore McCormack has become associated with North American Rayon Corp., New York, as that company's educational director, working with manufacturers, stores and consumers in connection with fabrics made of North American Rayon's yarns.

Dr. A. J. L. Moritz, technical vice-president of American Enka Corp., Enka, N. C., was the guest of honor at a dinner given by that organization on June 11 at the Battery Park Hotel, Asheville. Ten years ago on that day the first boiler was fired at the then newly-erected Enka plant.

Max Schwarz for 30 years in the cotton converting business, has come from retirement to establish Max Schwarz Fabrics, Inc., with offices at 1415 Broadway, New York, which will convert rayon fabrics. **John Robinson,** is the stylist and **Kurt Lehman,** sales manager.

Paul Loewinger has resigned as secretary of the Emerson Finishing Co., Cohoes, N. Y.

Abram B. Pierce, for the last nine years sales agent for the yarn department of the Lawrence Mfg. Co., Lowell, Mass., has been made sales agent for the new Amoskeag-Lawrence Yarns, Inc., Manchester, N. H.

Theodore R. Louis, agent of the Fall River (Mass.) Division of American Thread Co., and associated with that organization for 52 years, was scheduled to retire at the end of June. **Millard W. McLeod** of Kendall Co., has been named as his successor.

C. E. Blackler, New York representative of the Springdale Finishing Co., Inc., Canton, Mass., for the past 18 months, and formerly with Bradford Dyeing Association (U. S. A.) for 16 years, has been appointed vice-president in charge of sales for the Springdale company.

Charles A. Gibson, who has been assistant manager of the Kendall Co.'s cotton plant at New Bedford, Mass., has been promoted to manager of the Colrain and Turners Falls (Mass.) plants, succeeding **Willard W. McLeod,** who recently resigned to become agent of American Thread Co. in Fall River.

Leon A. Stanley, Jr., of Anniston, Ala., is now employed by the Linen Thread Co., Blue Mountain, Ala. Mr. Stanley was graduated from Alabama Polytechnic Institute in February, 1939.

R. Carter Nyman, personnel director of the Thrift unit of Kendall Co., Paw Creek, N. C., resigned to become personnel director of the service staff and

W. E. BEATTIE MEMORIAL

TWO GRANDCHILDREN of the late William E. Beattie, pioneer cotton manufacturer of South Carolina, unveiled a memorial to Mr. Beattie at Piedmont, S. C., June 4. The memorial, which stands in the village park, is a massive, handsomely carved granite block, surmounted by a sundial.

MILL EMPLOYEES ATTEND NIGHT SCHOOL—The above group of boys are employees of Rocky Mount (N. C.) Mills who have been attending the night school which started last October. (Left to right) 1st row: Graham Perry, Greely Davis, H. A. Paris, James Coley, Coy Frye, Louis Ellis. Second row: Charles Rose, George Williams, Clarence English, Sam Powell, Mercer Avent, Atwood Price, Sam Crusenbury. Back Row: W. L. Jones (teacher), Allen J. Casey, James Cuddington, George P. Gatling, James Rose, Oliver Mathis, Charlton Hay, Clarence Strickland, Frank Hay. Johnnie Mathews was absent. R. W. Dunn is also a teacher. M. G. Frye is superintendent of the mill.

clerical assistants at Yale University, and assumed his new duties on July 1.

Charles Decker, Jr., has been named Milwaukee branch manager of Chase Bag Co., to succeed **Herman V. Boll,** promoted to assistant eastern sales manager, New York.

S. W. Rabb, formerly superintendent of Erlanger Cotton Mills, Lexington, N. C., has been promoted to general manager of that plant. Mr. Rabb is a graduate of Clemson Textile School, class of 1913.

Thomas Howard has been appointed chairman of a group to draft a new constitution and select a new name for an organization to take the place of the Blackstone Valley Mills Association. This association voted to disband on June 6 when its members met at Farmansville, Mass. The new plan is to permit the group to branch out into territory beyond the Blackstone Valley for its membership.

Henry Hand Rankin has become superintendent of the South Fork Mfg. Co., Belmont, N. C., succeeding **W. J. Pharr,** resigned. Mr. Rankin has been associated with the Cannon Mills Co.

Everett Blethen and **Fred Prosser,** in recognition of nearly 60 years of service as overseers at Worumbo Mfg. Co., Lisbon Falls, Me., were tendered a farewell testimonial dinner at Hotel Eagle Brunswick by the mill officials and overseers. On May 11 Mr. Blethen, overseer of the spinning room, completed 59 years of service, while more recently Mr. Prosser, overseer of the dressing room, completed 57 years.

Eugene Bonds, first shift second hand in No. 3 spinning room at Cannon Mills No. 1, Kannapolis, N. C., has been promoted to second shift overseer in that department, and **Luke Carnes,** spooling section man in No. 3 spinning room, has succeeded him as second hand.

M. B. Wallace, Jr., has been appointed assistant-manager of Nebel Knitting Co., Inc., Charlotte, N. C. **Mr. Wallace** has been with the company since 1935.

J. Roy Fant, secretary of the Lockhart, S. C., plant of Monarch Mills, has been elected vice-president of the University of South Carolina Alumni Association.

W. T. Morton has been made superintendent of spinning, spooling, warping divisions of Borden Mills, Kingsport, Tenn. He was formerly with the Florence Mills, American Spinning Division, Greenville, S. C.

S. A. Summey, superintendent of the Alexander (N. C.) Mfg. Co., has been re-elected mayor of the Town of Alexander. He has served in this capacity since 1923.

L. G. Moss has assumed his new duties as assistant superintendent of the Monaghan unit of the Victor-Monaghan Mills at Greenville, S.C. He was formerly connected with Marshall Field & Co.

B. Z. Kennimore has resigned his position with the Hazel Knitting Mills, Burlington, N. C., to accept the superintendency of the Star Hosiery Mills, Conover, N. C.

W. B. Williams has resigned as overseer of weaving at the Gossett Mills, Anderson, S. C., and has become assistant professor of weaving and designing at the

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SOUND, ESSENTIAL TRAINING!

In any field, the untrained man is doomed to eternal failure. The odds against him are too great. It is realization of this fact that impels ambitious men to enroll with the International Correspondence Schools—and get the TRAINING they need.

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☐ **Cotton Manufacturing** ☐ **Chemistry**
☐ **Woolen Manufacturing** ☐ **Business Management**

TECHNICAL AND INDUSTRIAL SUBJECTS

☐ Air Conditioning and Cooling	☐ Diesel Engineering	☐ Radio ☐ Refrigeration
☐ Architectural Drafting	☐ Electrical Engineering	☐ Sanitary Engineering
☐ Architecture	☐ Electric Lighting	☐ Sheet Metal Work
☐ Auto Elec. Technician	☐ Fire Bosses	☐ Steam Elec. Eng'ring
☐ Auto Technician	☐ Foremanship	☐ Steam Engineering
☐ Aviation Engineering	☐ Heating	☐ Steam Fitting
☐ Boilermaking	☐ Heat Treatment of Metals	☐ Structural Drafting
☐ Bridge Engineering	☐ Highway Engineering	☐ Structural Engineering
☐ Building Estimating	☐ House Planning	☐ Surveying & Mapping
☐ Chemistry	☐ Machinist	☐ Telegraph Engineering
☐ Civil Engineering	☐ Mechanical Drafting	☐ Telephone Work
☐ Coal Mining	☐ Mechanical Eng'ring	☐ Toolmaking
☐ Contracting and Building	☐ Patternmaking	☐ Ventilation
☐ Cotton Manufacturing	☐ Plumbing	☐ Welding, Electric and Gas
	☐ Public Works Eng'ring	☐ Woolen Manufacturing

BUSINESS SUBJECTS

☐ Accounting	☐ Civil Service	☐ High School Subjects
☐ Advertising	☐ College Preparatory	☐ Managing Men at Work
☐ Bookkeeping	☐ Cost Accounting	☐ Salesmanship
☐ Business Correspondence	☐ C. P. Accounting	☐ Spanish
☐ Business Management	☐ First Yr. Col. Subjects	☐ Secretarial Work
	☐ French	☐ Stenog. and Typing
		☐ Traffic Management

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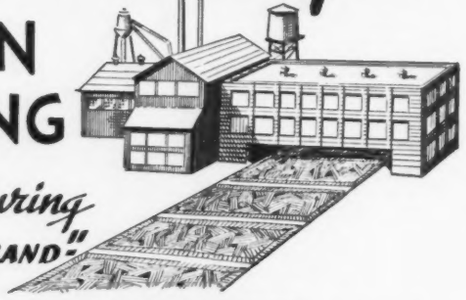
Address.....

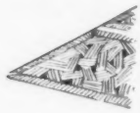
City.....*State*.....

Present Position.....

Canadian residents send coupon to International Correspondence Schools Canadian, Limited, Montreal, Canada. British residents send coupon to I. C. S., 71 Kingsway, London, W. C. 2, England.

Carpet Mill gets-
EVEN DYEING
"Since scouring with 'C' BRAND"





SAYS THE SUPERINTENDENT, "we get fewer resists, hence more even dyeing." The "C" Brand is a special silicate of soda, uniformly controlled as to quality. It improves scouring because of high emulsifying power. This greater efficiency with "C" Brand has also reduced scouring costs.

Without obligation, let us send you more information about wool scouring with "C" Brand.

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Chicago Sales Office: 205 W. Wacker Drive. Stocks in 60 cities.
Sold in Canada by NATIONAL SILICATES LTD., Toronto, Ont.

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SILICATES OF SODA

WHITMAN Yarns

MONOMAC SPINNING CO.
LAWRENCE, MASS.

ARLINGTON MILLS
LAWRENCE, MASS

NONQUITT MILLS
NEW BEDFORD, MASS.

INGRAM SPINNING CO.
NASHVILLE, TENN.

CRAMERTON MILLS
CRAMERTON, N. C.

TALLAPOOSA MILLS
TALLAPOOSA, GA.

WILLIAM WHITMAN COMPANY, INC.
NEW YORK BOSTON PHILADELPHIA CHARLOTTE

textile school of Clemson (S. C.) College.

A. H. Hamilton, formerly of Laurinburg, N. C., is now overseer of carding and spinning at Pee Dee Mfg. Co., Rockingham, N. C.

Ray Stenson, for 20 years in charge of yarn production at the Glenark Mills of Uxbridge Worsted Co., Woonsocket, R. I., has resigned to accept a similar position with Cleveland (Ohio) Worsted Mills Co.

William Savicki, of Brockton, Mass., has been elected president of the Textile Designers, Analysts and Technicians Associates at the annual meeting held in Fall River on June 3. **Leo Chabot** of Fall River is now vice-president; **Frank Kostecki** of West Warwick, R. I., treasurer; and **Oliver Bodeau** of Fall River was re-elected secretary. **Alfred Higgins** of Fall River, technical adviser to the group, is planning a meeting to be held some time this month.

W. R. Banes has become night second hand in spinning at Greenwood (S. C.) Cotton Mills.

Albert Marriott, formerly of Bloomfield, N. J., has become superintendent of the Salem (Va.) Full-Fashioned Hosiery Mills, Inc.

Charles Frederick Blume has resigned as night overseer of spinning at the No. 2, Gayle unit of Springs Cotton Mills, Chester, S. C., and has gone to Lexington, N. C.

C. L. Fields is now second hand in spinning at the Greenwood (S. C.) Cotton Mill.

Elbert Pride has been elected superintendent of the Taylor unit of Bibb Mfg. Co., Macon, Ga.

Leon A. Stanley, Jr., who was graduated from the textile engineering department of the Alabama Polytechnic Institute, Auburn, Ala., has accepted a position with the Linen Thread Co., Inc., Blue Mountain, Ala.

J. E. Cannon has been appointed general overseer of weaving at the Moultrie (Ga.) Cotton Mills.

R. A. McCraney has been transferred from unit No. 2 of the Chadwick-Hoskins Co., Charlotte, N. C., to overseer of spinning at the No. 4 unit of the same company.

Obituary

Homer Loring, president of United Merchants & Manufacturers, Inc., New York, died June 21. Mr. Loring was an important financial figure when he came into the textile picture only eleven years ago. He had had a successful experience in banking and railroading. He merged three Fall River banks, and his company brought together several fine goods mills, finishing plants and converting houses.

HOMER LORING

Joseph F. Cannon, 63, vice-president of Davidson Cotton Mills and member of the Board of Wiscassett Mills Co., died June 20 at Hot Springs, Ark., where he had been for some time on account of ill health. He was the eldest son of J. W. Cannon, founder of the Cannon Mills Co., but had been inactive in the textile business for the last few years.

John R. Hart, 66, former president of the American Mercerizers Association and a director in the Hampton Spinning Mills, died at his home in York, S. C., June 22.

Eugene J. Droesch, 53, assistant in the chemical department of the American Cyanamid & Chemical Corp., New York, died June 20. He started as a boy with the former firm of A. Klipstein & Co. which was absorbed by Cyanamid in 1931.

Ludolf Portang, 65, one of the pioneers in the development of high-fashioned cotton goods, and president of Everfast Fabrics, Inc., New York, died May 26. He was for many years with N. Erlanger Blumgart & Co.

Carl B. Jantzen, 56, co-founder and secretary of the Jantzen Knitting Mills, Portland, Ore., died May 30. He was born in Denmark and was with the company when it was first organized in 1910 under the name of the Portland Knitting Co. His earliest contribution to the bathing suit industry was the manufacture of these garments from elastic-rib fabrics at a time when all other knitted bathing suits were being made of flat-knit fabrics.

William Squires Belding, a son of one of the founders of Belding

Bros. & Co., and associated with that company and its successors until his retirement seven years ago, died at his summer home in Gloucester, Mass., June 18.

Warren Peters, 60, sales manager of the Johnston Mills Co., died in New York May 25.

W. Richard Brackett, 36, head of the women's wear department of Jerome Leonard & Co., New York, died suddenly May 24.

Max A. Thus, 72, president of the Reading (Pa.) Dyeing Co., died suddenly June 10.

Andrew J. Kohn, 68, associated some years ago in a silk manufacturing enterprise with his brothers at Norwich, N. Y., died in Paterson, N. J., May 22.

Charles W. LaDow, 53, associated for many years with F. C. Huyck & Sons, died at his home near Albany, N. Y., May 29.

Earle N. Woodruff, 64, for the last 25 years office manager of the Fulton Bag & Cotton Mills, New Orleans, La., died last month.

Arthur S. Musgrove, 60, superintendent of the Musgrove Knitting Mills, Pittsfield, Mass., for the last 30 years, died June 6. He was a nephew of the late John H. Musgrove, founder of the business.

Edward J. McNamara, 40, overseer in a mill of the American Woolen Co., died at Webster, Mass., last month.

Robert E. Keyes, chief engineer, Cooling & Air Conditioning Division, B. F. Sturtevant Co., died at the Metropolitan Hospital, Philadelphia, May 29. Mr. Keyes was with Sturtevant from 1909 and had made fundamental contributions to air conditioning technique.

James Moodie, 58, treasurer of J. R. Moodie & Sons, Ltd., textile manufacturers of Hamilton, Ont., died recently at his home in that city.

William Clifford Stevens, 55, who since 1930 was vice-president in charge of engineering, secretary and a director of Cutler-Hammer, Inc., Milwaukee, Wis., died recently.

George Peabody Gardner, 83, former president of Great Falls Mfg. Co., Somersworth, N. H., the Amoskeag Co., Manchester, N. H., and the Lawrence Mfg. Co., Lowell, Mass., widely known during his long career for his business, utility and philanthropic interests, died at his summer home in Bourne, Mass., June 6.

Erhard Mayer, 57, president and founder of the National Hosiery Mills, New Orleans, died at New Orleans recently. Native of Germany, Mr. Mayer started the mills 29 years ago.

Christopher Allen, 84, Stafford Springs, Conn., retired woolen manufacturer, associated from 1883 to 1908 with Phoenix Mills, died recently at West Hartford.

Curtis W. Miller, 76, former office manager for U. S. Finishing Co. in Providence and Pawtucket, R. I., and with the company for over 40 years, died in Rice City, R. I., June 8.

Otto Hockmeyer, 80, head of the Waterside Mills, Lowell, Mass., and vice-president of the New York firm of Hockmeyer Bros., Inc., died June 12 at Lowell. He was a native of Manchester, England, and was widely known in the corduroy importing and manufacturing fields.

F. C. Graddick, 73, former superintendent of Winder Cotton Mills, died at Winder, Ga., June 12.

O. T. Crawley, 50, overseer of the spinning department of the Alexander Mfg. Co., Forest City, N. C., died May 23.

James L. Muir, 76, inventor in the textile machinery field, and employed by Arnold Print Works, North Adams, Mass., died June 11. He devised oil drip cup and a time-saving shuttle device.

P. H. O'Neill, who for eight years was general superintendent of the Lincoln Cotton Mills, Evansville, Ind., died in Huntsville, Ala. He was more recently superintendent of the Merrimack Mfg. Co., in Huntsville.

W. Chester Allinson, 40, an assistant foreman and chemist at Sayles Finishing Plants, Inc., Lincoln, R. I., died in Saylesville, R. I., May 29.

Fred W. Brown, 70, who retired May 19 after 44 years' service with the Danvers (Mass.) Bleachery of the Naumkeag Steam Cotton Co., with the rank of overseer, died of a heart attack on May 25 at a banquet being given in his honor.

A. L. Briles, 56, for the last 23 years superintendent and general manager of the Sapona Cotton Mills, Cedar Falls, N. C., died May 27.

Delafield Moss Owens, 65, who for a number of years had been associated with the Tubize Chatillon Corp. at Hopewell, Va., died recently.

Dr. Immanuel Pfeiffer, Jr., 59, formerly engaged in textile machinery manufacture at Bedford, Mass., died at that place on May 24.

Wilmer L. Campbell, superintendent of the outerwear department of Penman's Ltd., Paris, Ontario, died in that town recently.

J. M. Dickson, head of Arkona Knitting Mills, Ltd., Arkona, Ontario, who was seriously ill at the time of a fire which recently destroyed the plant, died last month.

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● The *natural action* of the malt enzymes in Exsize gently but thoroughly removes starch sizing from cotton fabrics. And that's a big advantage to you, because it means better bleaching, softer finish and leveler dyeing. What's more, since Exsize contains no harsh chemicals you run no risk of tendering even the sheerest fabrics. Exsize is easy to use, and very inexpensive. Why not write today for one of our practical mill men to come and help you solve your desizing problems? Our services are at your disposal.

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✓ Added breaking strength —

✓ Less decrease in elongation —

✓ A simpler size formula —

✓ Fewer loom-stops —

All provable advantages of HOUGHTO-SIZE . . . a warp size softener which, in two years, has set a standard of excellence surpassed by no other product. We can prove them in *your* mill. Just call the Houghton Man for further merits of

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FOR COTTON WARPS

The Houghton plan for testing warp sizing has proven enlightening to hundreds of mills everywhere. It checks your present formula for all properties . . . and includes microphotographs of sized and unsized warps. A Houghton Warp Size Check-Up Test will convince you that HOUGHTO-SIZE is the only answer to efficient and profitable warp sizing. It is free for the asking. Write

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TEXTILE MILL NEWS

Cotton Mill News

Bridgeport (Conn.) **Fabrics, Inc.,** is having plans prepared by Fletcher-Thompson, Inc., Bridgeport, for a new factory unit on Holland Avenue to cost about $30,000.

Eagle & Phenix Mills and **Bradley Mfg. Co.,** Columbus, Ga., have opened their own direct selling offices in eight cities, with sales headquarters at 40 Worth St., New York.

Georgia Chenille Co., Dalton, Ga., has leased the plant at Putnam, Conn., formerly occupied by Edward Bloom Co.

North Georgia Mfg. Co., Toccoa, Ga., subsidiary of Clark Thread Co., has completed erection of a one-story building, about 200x200 ft., to be used for warehouse service.

Goodyear Tire & Rubber Co. is to discontinue its tire fabric plant in New Bedford, Mass., according to word received by H. M. Coulter, assistant treasurer and J. T. Heaney, superintendent of that plant.

Whitman Mills, New Bedford, Mass.—This property, heretofore owned by city, has been acquired by Stokely Bros. & Co., Indianapolis, Ind., and will be used for another line of production.

Johnson & Johnson, New Brunswick, N. J., operating Red Cross Mills, plan new branch mill on site now being selected, consisting of several one and multi-story units. Cost estimated close to $700,000, with equipment.

Flint Mfg. Co., Gastonia, N. C. is selling 143 company owned houses. Mill employees will be given first opportunity to purchase the homes on long-term financing which provides easy installments.

Norlina Cotton Mills, Inc., have moved from Gastonia, N. C. to Lowell, N. C. where they are located in the former United Spinners, Inc., Mill No. 1. They make hand-knitting specialty yarns with a weekly production of 50,000 lb. About 100 operatives are employed. J. L. Gray is president, and J. L. Gray, Jr., vice-president.

Travora Mfg. Co., Graham, N. C., will install no additional finishing machinery in new addition, which will be used for warehouse purposes at present.

Anchor Mills Co., Huntersville, N. C., are installing three new dye vats and one driver. Company makes colored knitting yarn.

Cleveland Mill & Power Co., Lawndale, N. C., is constructing a brick addition, 27x181 ft., two stories.

Sanford (N.C.) **Cotton Mills** have changed over about 70 looms for production of rayon fabrics. Other looms will not be changed at this time.

Goodyear Tire & Rubber Co., Akron, Ohio, has awarded general contract to A. K. Adams Co., Atlanta, Ga., for four-story and basement addition to branch mill at Gadsden, Ala., 100x100 ft. Cost reported over $150,000, with equipment.

Conestee (S. C.) **Mills,** closed for some time, will be offered for sale, the company being liquidated. Mill manufactured sheetings and drills with 17,000 spindles and 410 looms.

Cowpens (S. C.) **Mills,** through Stanley Converse, trustee, have filed a plan in Federal court, Greenville, S. C., for reorganization.

Glenwood Cotton Mills, Easley, S. C., have installed new equipment, including changing over the long-draft warp machinery in No. 1 and No. 2 units to filling. New humidifiers have been installed, and modern air-conditioning.

Riverdale Mill, Enoree, S. C., is installing $75,000 worth of new machinery, including two high-speed automatic spoolers of 180 spindles each and two warpers.

Joanna Cotton Mills, Goldville, S. C. has completed an extensive modernization program including installation of 9 one-process pickers; modern drawing equipment; long-draft roving; long-draft spinning on its 90,000 spindles; all new looms. The mill manufactures shade cloths.

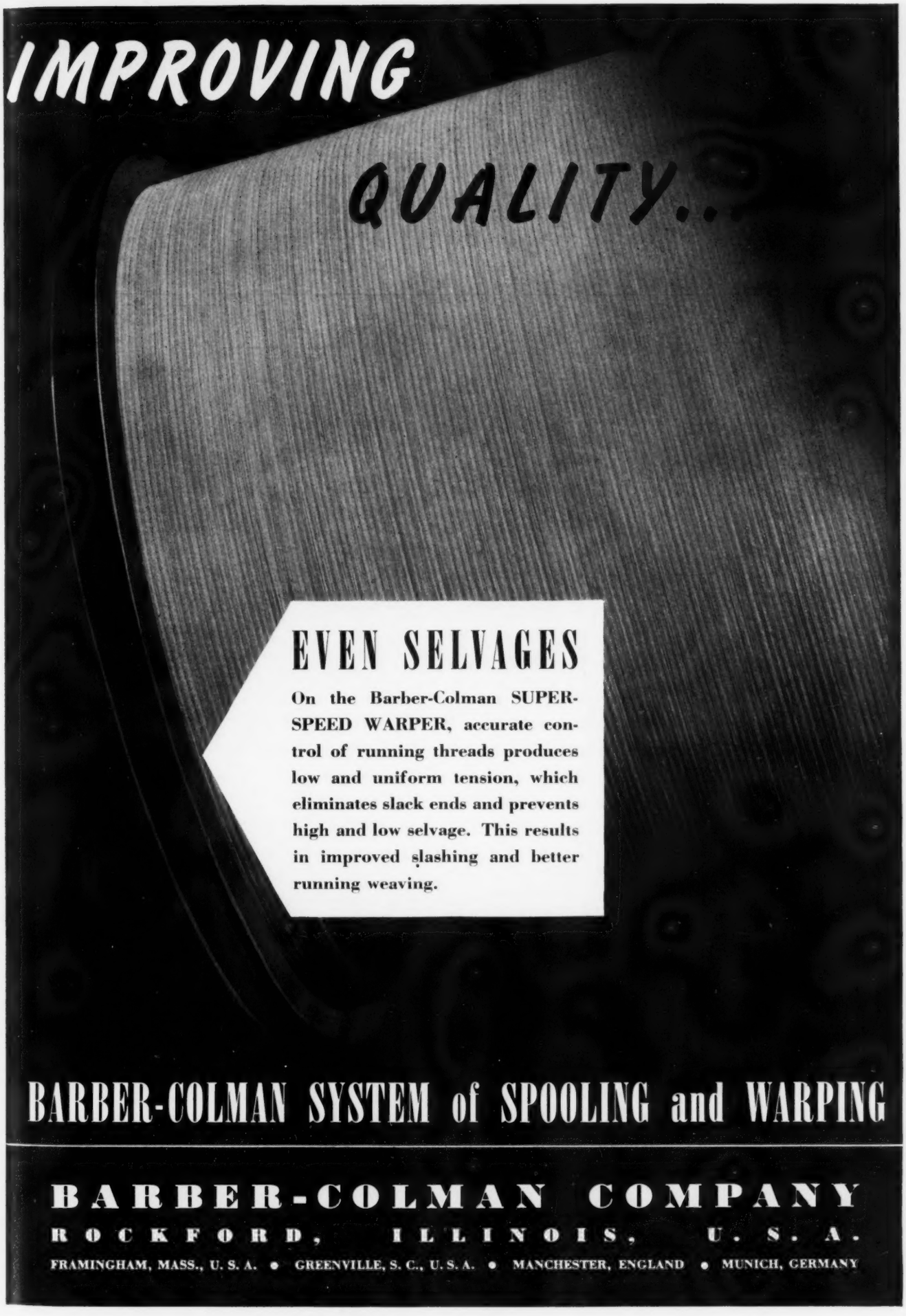
Courtney Mfg. Co., Newry, S. C., has resumed partial operation, following purchase by J. B. Abney, Greenwood, S. C., and associates. New owner will make improvements and have entire plant in production in near future.

B. F. Goodrich Co.'s new unit at Clarkville, Tenn., will be built of brick and steel, with a floor space with 200,000 sq. ft.

Memphis (Tenn.) **Chamber of Commerce** is actively interested in obtaining a large cotton manufacturing plant for Memphis.

Esmond Mills, Ltd., Granby, Que., plan one-story addition, and will carry out erection during the summer. Equipment will be installed for increased capacity. Cost estimated close to $60,000.

Flax Cooperative Society de Beaujeu, Ste. Marthe, Quebec, suffered the loss of its fine flax fiber mill by fire recently; loss was $25,000. The Society has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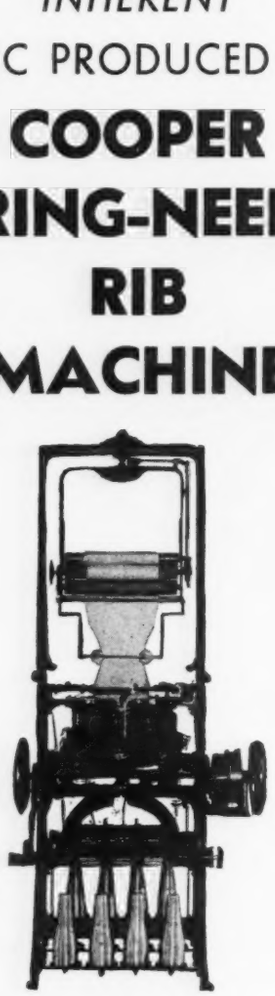

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Woolen Mill News

Ace Woolen Co., Norwich, Conn., has been chartered under State laws with capital of $50,000. Walter Bean, Charles W. Wheeler and Anna Foley are incorporators.

Old Town (Me.) **Woolen Co.**—Machinery and equipment in mills of this company at Old Town and Sangerville, Me., were sold recently to a number of purchasers.

Park Mill, Sabattus, Me., was sold at auction to a mill man from Boston on his bid of $22,000. It is said that he plans to operate the mill.

Hargraves Mill, West Buxton, Me., is soon to be operated by Joseph Loper of South Windham, it is reported. Frank E. Lemson of East Wilton is to be superintendent.

Copeland Woolen Mills, Inc., 8 Dana Rd., Belmont, Mass., have been organized with capital of 100 shares, to operate a local mill. Maurice S. Levinson is president and treasurer of the new company.

Quinbaug Mills, Dudley, Mass., comprising 10 buildings, 80 acres and water rights, were sold on May 24 to Charles Cohen of Woburn, Mass., for $1,050. The machinery is being sold in lots.

Farr Alpaca Co., Holyoke, Mass., reports net loss for the year ended Apr. 30, 1939 of $1,229,272. This compares with a net loss for the previous year of $2,739,569.

Mayo Woolen Mills Corp.—Judge Brewster in Federal Court at Springfield, Mass., June 12 granted petition of Mayo Woolen Mills Corp., Millbury, to reorganize. A loan of $150,000 from RFC will enable the company to reopen its plant. This plan must receive the approval of creditors.

Star Woolen Co., Cohoes, N. Y., may move to Springfield, Tenn. if it can secure a building and site tax free and other concessions.

Cocheco Woolen Mfg Co., East Rochester, N. H., has awarded contract to H. P. Cummings Construction Co., Woodsville, for boiler plant alterations. Holyoke (Mass.) Valve & Hydrant Co. has the separate piping contract for this plant.

Caledonia Woolen Mills, Clifton Heights, Pa., were sold at auction on June 20.

Collins & Aikman Corp., Philadelphia, Pa., has asked bids on general contract for four-story addition to branch mill at Bristol, R. I., about 140x150 ft Cost over $200,000, with equipment.

Clearbrook (Va.) **Woolen Co.,** recently organized to take over the local plant of Brucetown Woolen Mills, Inc., has work under way on the installation of additional equipment, including 16 looms and accessories, to produce lines of women's sportswear.

Nantana Woolen Mill, Northfield, Vt., has been leased by new operators from Keene, N. H., who will operate it as Northfield Mills, Inc. The lease was assigned to Edgar and Martha Teger, of Keene, N. H. for $5,000.

Black River Falls (Wis.) **Yarn Mills,** recently organized, plan operation of a local mill on woolen yarns. Incorporators include Thomas E. Mills, Earl H. Brinker and Erwin E. Homestead, all of Black River Falls.

Burlington (Wis.) **Mills** have approved plans for immediate erection of one-story addition, 35x70 ft., to be used for expansion in picker and shredder departments. Herbert W. Tullgren, Milwaukee, Wis., is architect.

Rayon & Silk Mill News

Nylon Division of E. I. du Pont de Nemours & Co., Seaford, Del., is progressing with erection of its new plant. Much of the steel work is up and one of the buildings is enclosed.

Clinton Silk Mill, 56 Canal St., Holyoke, Mass. was improperly referred to in these columns last month as the Clinton Silk Co. The Clinton mill has no connection with Clinton Co. Richard G. Guenther is sole selling agent for the Clinton Silk Mill.

New Bedford, Mass.—Operations have been resumed at the plant formerly occupied by Edgar Weaving Co. A. E. Fogelman, of New York, is general manager in charge for a new company being organized to hold and operate the property. The plant contains 200 looms.

E. I. du Pont de Nemours & Co., Rayon Department, Buffalo, N. Y., is operating its local rayon mill on River Rd., exclusively on production of staple fiber rayon. All continuous filament rayon equipment is idle at the plant and there is no intention of resumption, it is stated, for this line of output at the local mill.

Fulton (N. Y.) **Silk Mills** were bid in for $17,000 by the Reconstruction Finance Corp. at public auction on June 8. RFC holds a mortgage of about $76,000 on the property.

Josephine Mills, Inc., Marion, N. C., formerly the Elizabeth James Mill No. 1, has begun

operations, reaching capacity by the middle of last month.

Lexington (N. C.) Silk Mill is building an addition at a cost of $25,000. No new machinery will be installed.

Industrial Rayon Corp., Cleveland, Ohio, has work under way on installation of final group of machines at new rayon mill near Painesville, Ohio. The total mill equipment will comprise 9600 continuous spinning machines to develop a capacity of about 12,000,000 lbs. per annum; approximately 7200 such machines, or three-quarters of total installation, have been placed in operation. The new mill will increase the productive capacity of company about 70%.

Modern Throwing Co., Bethlehem, Pa., has let general contract to Frank F. Raish, Bethlehem, for two-story addition, 51x78 ft. Cost estimated over $40,000 with equipment. D. L. Warner, Bethlehem, is architect.

Royal Weaving Co., Pawtucket, R. I., closed more than a year, has been dissolved by court decree. For 40 years it was one of leading silk plants in the country.

International Braid Co., Providence, R. I., is one of the first to experiment with glass fiber in narrow fabrics field.

Atlantic Rayon Corp., Providence, R. I., reports net profit for 1939's first quarter of $28,669, compared with net loss of $128,150 for first quarter of 1938.

Celanese Corp. of America has completed the steel skeleton of its first unit, and the second is now in course of construction on New River, near Narrows, Va.

Knitting Mill News

Clarke-Washington Industries, Jackson, Ala., are installing 27 silk hosiery machines.

Skyline Farms, near Scottsboro, Ala., has completed the hosiery mill building in which the Dexdale company will operate a plant, using approximately 106 operatives of this Federal homestead project.

H. A. Vestal Co., Blue Ridge, Ga., a full-fashioned hosiery mill, is reported to have let a contract for construction of its new plant for the sum of $500,000. Mr. Vestal recently sold his plant at Athens, Tenn., to Van Raalte & Co.

Rochester (Mich.) Textile Mills—Machinery and equipment have been sold to a knitting company in the South, and plant is being dismantled.

Grenada (Miss.) Hosiery Mills will soon complete an addition costing about $8,000. The original building cost $32,000.

Clark Mills, Jackson, Miss., newly organized silk hosiery plant, have begun the erection of a building, costing about $55,000.

Apex Knitted Fabrics, New York, has leased an additional floor at its Broadway location for expansion of the knitting department. Jack Turner is president and manager of the plant.

Gotham Silk Hosiery Co., New York, has purchased the former Lehigh Silk Hosiery Co., Philadelphia for $115,000, including four-story modern building. It is understood that the property will be remodeled to house a modern finishing plant with a rated annual capacity of 30,000,000 pairs.

Julius Kayser & Co., New York, N. Y., have work in progress on installation of machinery at new branch mill in a city-owned building at Hattiesburg, Miss., secured under a 25-year lease, and expect to have the plant ready for operation before the close of July. The equipment installation, comprising 18 machines, each 28 sections, is reported to cost close to $500,000. The units are being set up at the rate of about three a month.

Asheville Hosiery Co., Asheville, N. C., has completed a one-story addition to its knitting department.

Flake Robinson has begun the installation of machinery in a new hosiery plant established by him at Catawba, N. C. A new building has been constructed.

Henderson Hosiery Mills, Hickory, N. C., is to be offered at public auction on July 24 as a result of court decision on June 25.

Shoaf-Sink Hosiery Mill, Lexington, N. C., will soon complete construction of an addition 60x160 ft. to expand the finishing department.

McPar Hosiery Mills, Marion, N. C., has installed 38 automatic machines.

Randleman, N. C., unit of Burlington Hosiery Associates, Inc., with headquarters in Pulaski, Va., under the general managership of Thomas J. Wallner, began partial operations last month. William J. Armfield, III., of Asheboro, N. C., is president of the Randleman plant. Of the 12 Reading machines recently installed, three were in production. The leggers are 26-section and the footers 30-section. Building has space for 26 machines.

Byrum Hosiery Mill, Inc., Shelby, N. C., is continuing under receivership until bids are received on stock and machinery to justify some arrangement for continuing further operation. E. J. Hanson of Charlotte, N. C. is receiver.

Dexdale Hosiery Mills, Lans-

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dale, Pa., will operate the spinning and throwing plant in connection with the Cumberland Homesteads project.

Van Kirk Hosiery Mills, Inc., Philadelphia, Pa., have asked bids on general contract for one-story and basement addition, 50x100 ft., at Tulip and Van Kirk Sts. Cost over $40,000, with equipment. Theodore K. Opperman, Philadelphia, is architect.

Nolde & Horst Hosiery Mills, Reading, Pa., are installing new 51-gage high-speed full fashioned knitting machines with welt-turning equipment. The concern is shipping 24 machines to a Southern mill to make room for the new ones.

Infants' Socks, Inc., Reading, Pa., have asked bids on general contract for new one-story branch mill at Eufaula, Ala., to cost about $50,000, with equipment. John D. Sweeny, Dothan, Ala., is architect.

Meinig Hosiery Co., Reading, Pa.—Federal Court has authorized final liquidation.

Friedman - Blau - Farber Co., Cleveland, Ohio, brought a total of about $100,000 when auctioned in small lots about a month ago.

Rose Glen Knitting Mills, Sumpter, S. C. (which was reported as sold to local interests in our last issue), although previously controlled by Locke Cotton Mills of Concord, N. C., was not in a receivership as was the latter company. Locke owned 52% of the common stock in Rose Glen and the minority stockholders of Rose Glen purchased that stock interest from John W. Clark, receiver for Locke. Rose Glen has been in operation uninterruptedly and is continuing without change in active management.

Nocturne Hosiery Mills, Union, S. C., affiliated with Jac. Feinberg Hosiery Mill, Inc., Rock Hill, S. C., are completing an addition for expansion in finishing department.

Cherokee Hosiery Mills and **Wilma Hosiery Mills,** both of Cleveland, Tenn., and the **Hiwassee Hosiery Mills** of Charleston, Tenn., will soon occupy the same building at Cleveland which is now under construction at a cost of $20,000. It will measure 125x85 ft., and will be ready by the end of July. The mills will have increased floor space but will remain separate companies.

Town House Hosiery Mill, Chilhowie, Va., has begun operations with two machines. The remaining 11 machines are being installed and all will be in operation by Sept. 1.

Royal Oak Hosiery Mills, Inc., Marion, Va., with Wm. M. Grosse, superintendent, is getting into operation.

Shenandoah (Va.) Knitting Mills, new concern operating 16 machines, has been exempted from taxes for five years.

Arkona Knitting Mills, a 79-year-old concern in Arkona, Ont., was totally destroyed by fire last month with loss of $25,000. The plant made knitting wools and socks.

C. Turnbull Co. Ltd., Galt, Ont., has purchased the machinery and equipment of Fred R. Folsom & Co., Toronto, Ont., makers of men's half-hose and plain and fancy anklets, and will move same to its mill in Galt. Fred R. Folsom will have charge of the hosiery division.

York Knitting Mills, Ltd., Toronto, Ont., will install Wildman single-unit machines. These will be set up in the plant of Hosiers Ltd., at Woodstock, Ont., a subsidiary of York Knitting Mills Ltd.

Processing Plant News

Phoenix Dye Works, Chicago, Ill., will soon award contract for two-story and basement addition. Cost estimated close to $45,000, with equipment.

Whitestone Dye Works, Inc., Grand Ave., Maspeth, L. I.—Dyeing and finishing machinery at this mill was sold recently at public auction to a number of purchasers.

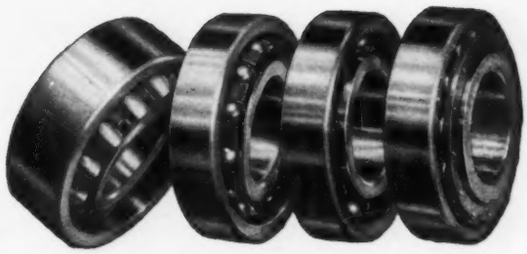
Peerless Textile Finishing Corp., New York, N. Y., care of Seymour D. Eichen, 170 Broadway, recently organized with capital of $20,000, plans operation of a dyeing and finishing plant.

Kerr Bleaching & Finishing Works, Inc., Concord, N. C., has built a new warehouse at an approximate cost of $19,000.

Hickory (N. C.) Dyeing & Winding Co., organized a few months ago, has begun superstructure for new two-story mill, 40x80 ft., at Highland, a suburb of Hickory, for which erection contract was awarded recently to M. G. Crouch Co., Hickory. Cost about $35,000, with equipment. George Hall, Jr., is president and general manager.

United States Finishing Co. reports a consolidated net loss of $309,259 for the full year of 1938, compared with a net loss of $886,445 for 1937.

Summit Dyeing Co., Ltd., Toronto, Ont., has established a department for commission dyeing and finishing of woolen and worsted piece goods. Dyeing, crabbing, dewing, tentering and shearing machinery has been installed at a cost of $25,000. The company will continue to dye and finish woven and knitted silk and rayon piece goods for Ontario Silknit Ltd., the parent company.



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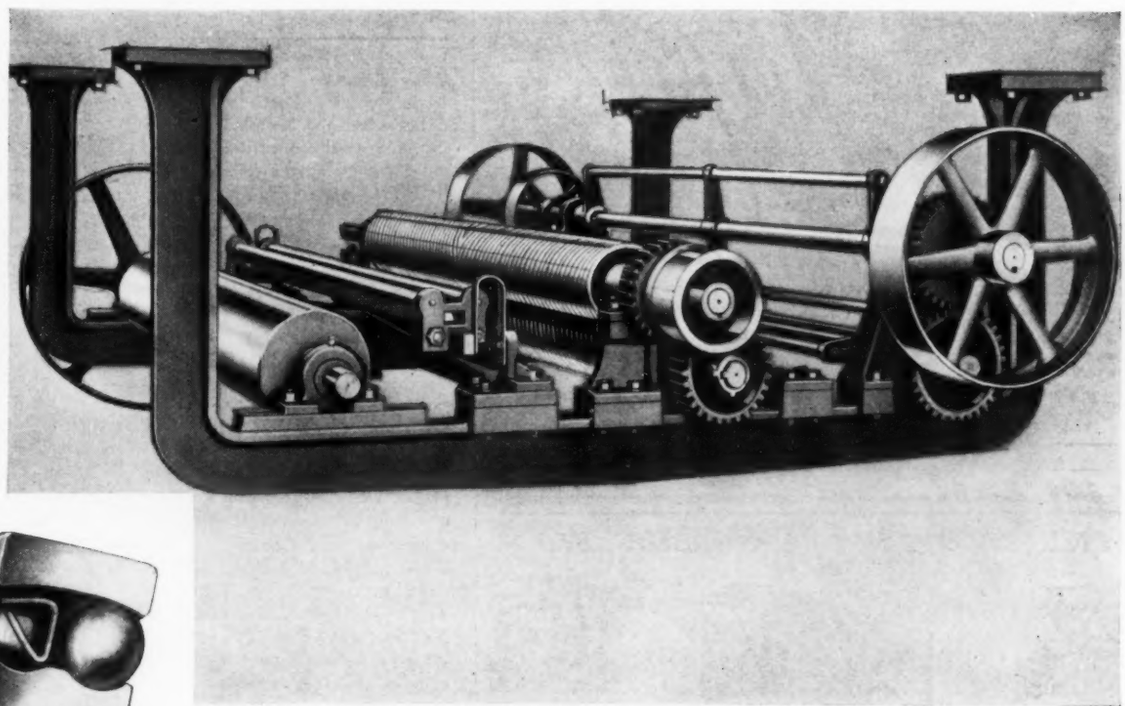

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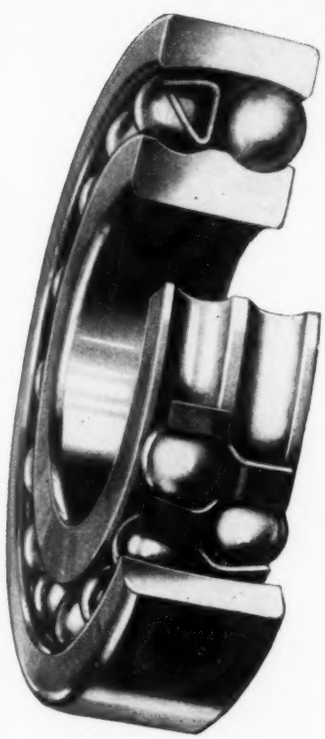

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Air Cleaning. Schmieg Sheet Metal Works. Loose-leaf type catalog dealing with air cleaning and dust collecting equipment in both centralized and localized systems.

Thickening Materials. Stein, Hall & Co., Inc. 8-page reprint of technical paper discussing "Thickening Materials for Textile Printing."

Gears and Turbines. Westinghouse Electric & Mfg. Co. Technical bulletin 71,000 describes characteristics and advantages of heat-treated, hardened gears; 48-page booklet, No. B. 2198, contains comprehensive data on application and selection of steam turbines.

Heating and Cooling. L. J. Wing Mfg. Co. Bulletin H-6AB describes company's Featherweight unit heaters; Bulletin F-7 features a unique table for quick selection of fans; Bulletin HS-1 describes company's Featherfin heater sections for heating or cooling of air; and another bulletin describes company's corrosion-resistant fans for use in presence of destructive fumes, vapors, steam, and moisture.

Control Instruments. Brown Instrument Co. Humidity, temperature, level, and other controls for the textile industry are described in Catalog No. 9304.

Time Recorders. Stromberg Time Corp. Two bulletins, one describing time recording equipment for small, medium, and large companies; the other describing the company's job-time recorder for eliminating inaccuracies in reporting of time consumed per job.

Burr Picker. Davis & Furber Machine Co. 8-page booklet, No. BP-83, describes company's improved burr picker; describes new features which give better quality work and larger production.

Water Softening. Elgin Softener Corp. Bulletin describes zeolite and other water-conditioning equipment manufactured by this company; contains installation photographs and diagrams showing capacities and operating methods.

Steel Strapping. Acme Steel Co. Booklet describes application of company's strapping material to shipments of many products; included are several photographs showing different types of textile shipments.

Stamping and Marking. Dickey-Grabler Co. 84-page catalog describes and pictures company's metal-stamping and marking devices, including stencils, rubber stamps, metal tags, etc.

Water Conditioning. Permutit Co. Leaflet 2217 describes company's expansible strainer head for filter and softener pipe underdrain systems; Bulletin 2204 describes, in 16 pages, company's Spaulding precipitator for treatment of water by cold lime process.

Power Transmission. Allis-Chalmers Mfg. Co. 4-page folder contains illustration of company's drives, motors starters, and other equipment installed in textile mills.

Warp Sizing. Charles B. Johnson. May issue of Rayon Warp Sizing Specialist contains numerous short items of interest to users of rayon warp sizing equipment.

Electrical Control. General Electric Co. Bulletin GEA-2566A describes operation and advantages of company's weft-straightening control; Bulletin GEA-2949 describes and pictures company's mercury-button limit switch; Bulletin GEA-2608A describes and contains installation photographs of company's equipment for tenters.

Hardness Conversion Table. International Nickel Co., Inc. Handy pocket-size hardness conversion table for nickel alloy steels; reverse side lists S.A.E. standard specifications for nickel alloy steels.

Reflectors. Reflectors, Inc. Leaflet describes company's reflecting equipment for use with fluorescent lights; contains photograph of reflector and price data.

Variable Speeds. Speedmaster Co. Bulletin describes low-cost variable pulleys; contains photographs and diagrams illustrating various applications.

Clothroom Equipment. Hermas Machine Co. May issue of Clothroom Spotlight contains article describing com-

IF you are still using hydro extractors and old type dryers in your dye house, it will pay you to investigate modern Hunter equipment. It will pay you to get details of savings in labor, horsepower, steam and floor space in specific installations.

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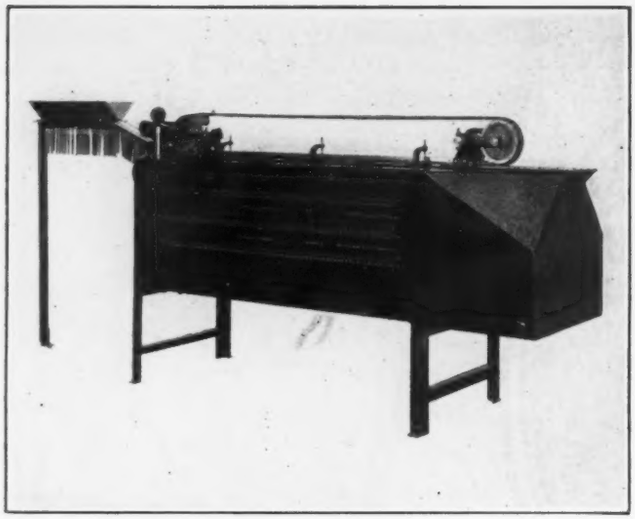

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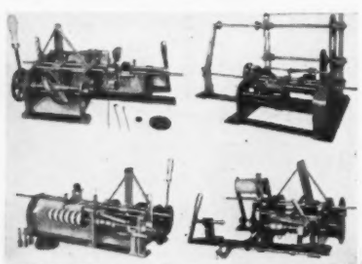

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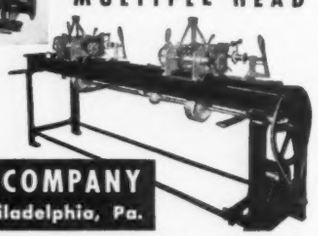

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pany's new loop clipper and selvage cleaner.

Motor. Diehl Mfg. Co. Bulletin No. 1977, containing twelve pages, describes company's motors for the textile industry; included are numerous installation photographs showing application of company's products to a number of types of machines.

Mixers. Mixing Equipment Co. 8-page publication contains catalog data on company's side-entering mixers; included are diagrams and data describing methods of installation.

Wetting-Out and Degumming. E. F. Houghton & Co. May-June issue of Houghton Line contains articles on wetting-out, degumming silk hosiery; also other technical material.

Agitating and Mixing. Patterson Foundry & Machine Co. Catalog 395 contains 96 pages of photographs and descriptive material concerning company's agitators, mixers, and dissolvers for a wide range of applications.

Wool Weaving. Eavenson & Levering Co. June issue of Making the Grade With Wool contains article describing advances in methods of wool weaving.

Elastic Tops. Union Special Machine Co. Article on finishing of elastic-top hosiery is contained in June issue of The Needle's Eye.

Cleaning. Oakite Products, Inc. May-June issue of Oakite News Service contains article describing methods and materials for use in cleaning return lines of humidifying systems.

Packaging. Hinde & Dauch Paper Co. 16-page presentation titled "Christmas Packaging" contains photographs of appropriate packages for various types of merchandise, together with actual samples of the materials used.

Speed Reducers. Stephens-Adamson Mfg. Co. Catalog 7838 contains illustrations, descriptions, and tabular data concerning company's speed reducing equipment.

Lubrication. Bowen Products Corp. Catalog No. 75 describes company's high-pressure, hydraulic, automatic system for lubricating machinery; included are diagrams showing system's operation.

Photo-Electric Counting. Lipman Engineering Co. Brochure describes company's high-speed, photo-electric counting equipment said to make up to 36,000 counts per hr.

Weaving Equipment. Crompton & Knowles Loom Works. Issue No. 8 of C&K Photo News contains photographic report of recent showings of company's new looms, and of textiles exhibited at New York World's Fair.

Speed Control. Reeves Pulley Co. Leaflet describes advantages of company's variable-speed equipment, and contains photographs of three basic units in company's line.

Insulated Cable. Anaconda Wire & Cable Co. 56-page catalog, No. C-42, contains description, application, and physical and electrical properties data on company's rubber-insulated power cable.

Steel Properties. Joseph T. Ryerson & Son, Inc. Compact chart gives tensile strength, yield point, elongation, and other data for nearly fifty different types of steel.

Instruments. Bristol Co. Bulletin 536 gives information regarding company's pH control instruments; Bulletin 533 describes company's thermal converter as it is used with potentiometers and millivoltmeters for a-c. electrical power measurements.

Lighting. General Electric Co. "Engineering Data on Fluorescent Mazda Lamps" is the title of a bulletin which gives considerable information on a variety of factors concerning fluorescent lighting.

Rust Prevention. New Jersey Zinc Co. 36-page booklet gives information regarding the advantages of zinc-dust paints for preventing rusting of iron and steel; included are photographs showing applications, colors available, etc.

Air Conditioning. Parks-Cramer Co. June issue of ***Parks' Parables*** contains twelve-page article discussing the importance of air conditioning in the rayon industry; includes schematic drawing showing typical central-station air-conditioning layout for a two-story textile mill.

Friction Clutches. Carlyle Johnson Machine Co. New clutch catalog, issued June 1, 1939, lists and illustrates company's power-transmission equipment; contains price and specification data, and diagrams showing various parts of friction clutches.